Supreme Court, U.S.
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No. _____

IN THE

Supreme Court of the United States

OCTOBER TERM, 1997

LOCKHEED AERONAUTICAL SYSTEMS COMPANY, a Division of LOCKHEED CORPORATION

Petitioner,

v.

STACY C. GRAY, *et al.*

Respondents.

Petition for Writ of Certiorari to the United States Court of Appeals for the Eleventh Circuit

PETITION FOR WRIT OF CERTIORARI

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January 22, 1998

QUESTION PRESENTED

This case presents the same question as that on which the Court has granted certiorari in *Dooley* v. *Korean Air Lines Co.*, No. 97-704. Restated, that question is:

> May a court supplement the pecuniary damages recovery expressly authorized by Congress in the Death on the High Seas Act with an award under the general maritime law of nonpecuniary damages for the decedent's pre-death pain and suffering?

LIST OF PARTIES

The petitioner herein is Lockheed Aeronautical Systems Company, a Division of Lockheed Corporation (now Lockheed Martin Aeronautical Systems Company, a Division of Lockheed Martin Corporation).

Respondents (plaintiffs in the District Court) are:

Stacy C. Gray, individually and as Surviving Spouse of Lt. Douglas G. Gray, and as Personal Representative of Lt. Douglas G. Gray, Deceased;

Grace M. Schumacher, individually and as Surviving Parent of Lt. John T. Hartman, and as Personal Representative of Lt. John Hartman, Deceased; and

Wilma J. Jennings, individually, and as Surviving Parent of Lt. David S. Jennings, and as Personal Representative of Lt. David S. Jennings, Deceased.

The United States was named as a defendant in the complaints, but was dismissed prior to trial.

RULE 29.6 LISTING

While this litigation was pending, the name of petitioner Lockheed Aeronautical Systems Company, a division of Lockheed Corporation, was changed to Lockheed Martin Aeronautical Systems Company, a division of Lockheed Martin Corporation. Lockheed Martin Corporation has the following subsidiaries that are not wholly owned:

Aditivos Y Minerales Aminesa, SA;
Aeroplex of Central Europe;
Airport Group Canada, Inc.;
Airport Group International GmbH;
Airport Group International Holdings, LLC;
Airport Group International, Inc.;
Airport Group United Kingdom Ltd.;
Alliance Emirates Development Co.;
Automated Test International Ltd. Partnership;
Bayou Mining, Inc.;
Beijing Huayun Meteorological Radar Systems Co. Ltd.;
Bocep Ventures;
CalComp Technology, Inc.;
Cure, Inc.;
Danish Aerotech A/S;
Earth Observation Satellite Company;
EO Systems International, Ltd.;
Euro-Art Radar Technology GmbH;
GETAC Corp.;
Glendale Respondents Group, LLC;
Guangzhou Aircraft Maintenance Engineering Co. Ltd.;
Gulf Diagnostic Centre;
Gulf Technology Systems Group;
Hellenic Business Development/Investment Co., S.A.;
Hellfire Systems, LLC;
Kongsberg/Lockheed Martin Space Data Services AS;
L3 Communications Holdings, Inc.;

LAH Limited;
L/E Systems Corp.;
Letlock-Saudi Arabia;
LMC MMT Strategic Alliance Committee, LLC;
Lockheed Aircraft Argentina, S.A.;
Lockheed Aircraft International Ltd.;
Lockheed Investment Holding Co., A.S.;
Lockheed Khrunichev Energia International Inc.;
Lockheed Martin Canada, Inc.;
LM Chemical Demilitarization, LLC;
Lockheed Martin GmbH;
Lockheed Martin IMS/Transfield JV Pty Ltd Company;
Lockheed Martin Int'l Commerical Sales, Inc.;
Lockheed Martin Intersputnik, Ltd.;
Lockheed Martin Logistics International, Inc.;
Lockheed Martin Tactical Systems UK Ltd.;
Lockeed Martin Yatirim Holdings, AS;
Lockeed Middle-East Services;
Longbow LLC;
Loral Space and Communications Ltd.;
Martin Marietta EO Associates (Europe), Inc.;
MEADS International, Inc.;
MedDetect, LLC;
Microelectronics and Computer Technology Corp.;
Mid-South Weaver;
MLRS International Corporation;
Narda International Corp. (The);
Narda Microwave Corporation (The);
New Cure, Inc.;
New Mexico Technology Group, LLC;
NS CalComp Corp.;
NV CalComp S.A.;
Pacific Aerospace Corp. Ltd.;
PDES, Inc.;

PGM Systems, Ltd.;
PGSUS, LLC;
Radarsat International, Inc.;
Rational Software Corp.;
Real 3D, Inc.;
RGE Engineering Service Company;
RLM Holdings, Pty, Ltd.;
Satphone;
Servicios Tecnicos Lockheed Martin de Mexico, SA de CV;
SIKA International Limited;
Sky Solutions;
Software Productivity Consortium, Inc.;
Software Productivity Consortium Ltd. Partnership;
Space Imaging, Inc.;
Standard Magnesia Ltd.;
Suramericana de Refractarios, CA;
Team Apache Systems, Inc.;
Telstar Systems Proprietary, Limited;
TI/Martin Javelin Joint Venture;
Toshiba Electronic System Co., Ltd.;
Tusas Aerospace Industries, Inc.;
United Space Alliance, LLC;
United Missile Defense Company, LLC;
Valley Association Corporation;
Vega Aircraft Company;
Western Investor Technology Group, Inc.;
Western Investor Technology Group LP;
WITG, LLC

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PETITION FOR WRIT OF CERTIORARI

Petitioner Lockheed Aeronautical Systems Company respectfully petitions for a writ of certiorari to review the judgment of the United States Court of Appeals for the Eleventh Circuit.

OPINIONS BELOW

The opinion of the Court of Appeals is reported at 125 F.3d 1371 and is reprinted in the Appendix ("App.") at pages 1a-32a.

The opinion of the District Court is reported at 880 F. Supp. 1559 and is reprinted at App. 33a-59a.

JURISDICTION

The judgment of the Court of Appeals was entered on October 24, 1997. This Court has jurisdiction under 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

Section 1 of the Death on the High Seas Act, 46 U.S.C. app. § 761:

> "Whenever the death of a person shall be caused by wrongful act, neglect, or default occurring on the high seas beyond a marine league from the shore of any State, or the District of Columbia, or the Territories or dependencies of the United States, the personal representative of the decedent may maintain a suit for damages in the district courts of the United States, in admiralty, for the exclusive benefit of the decedent's wife, husband, parent, child, or dependent relative against the vessel, person, or corporation which would have been liable if death had not ensued."

Section 2 of the Death on the High Seas Act, 46 U.S.C. app. § 762:

> "The recovery in such suit shall be a fair and just compensation for the pecuniary loss sustained by the persons for whose benefit the suit is brought and shall be apportioned among them by the court in proportion to the loss they may severally have suffered by reason of the death of the person by whose representative the suit is brought."

Section 5 of the Death on the High Seas Act, 46 U.S.C. app. § 765:

> "If a person die[1] as the result of such wrongful act, neglect, or default as is mentioned in section 761 of this Appendix during the pendency in a court of admiralty of the United States of a suit to recover damages for personal injuries in respect of such act, neglect, or default, the personal representative of the decedent may be substituted as a party and the suit may proceed as a suit under this chapter for the recovery of the compensation provided in section 762 of this Appendix."

STATEMENT OF THE CASE

On October 7, 1989, a Navy S-3 "Viking" aircraft crashed shortly after takeoff from the aircraft carrier U.S.S. *John F. Kennedy*. Three of the airplane's four crew members were killed in the accident, which occurred approximately 125 miles off of the coast of Virginia (App. 36a, 38a).

1. *The District Court's Decision.* In October 1991, the personal representatives of the three deceased crew members brought suit in the United States District Court for the Northern District of Georgia against Lockheed Aeronautical Systems Company ("Lockheed"), the manufacturer of the accident aircraft. Because the accident had occurred on the high seas, plaintiffs invoked the court's admiralty jurisdiction (28 U.S.C. § 1333), and asserted claims against Lockheed under the Death on the High Seas Act (46 U.S.C. app. §§ 761-768 ("DOHSA")) and the general maritime law (App. 34a). Following a bench trial, the District Court found Lockheed liable for the accident in an opinion entered on March 31, 1995 (App. 33a). In that

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[1] "So in original. Probably should be 'dies.'" [This footnote appears in the U.S. Code.]

opinion, the District Court also awarded damages totaling $4,225,000 to the families and estates of the three decedents (App. 58a-59a).

Of relevance here, the District Court concluded—over Lockheed's objection—that it was permissible to award damages under the general maritime law for the decedents' pre-death pain and suffering (App. 53a-56a). The court recognized that the Death on the High Seas Act "sets allowable damages as 'a fair and just compensation for the pecuniary loss sustained by the persons for whose benefit the suit is brought.'" (App. 53a (quoting 46 U.S.C. app. § 762).) The court, moreover, acknowledged that *Mobil Oil Corp.* v. *Higginbotham*, 436 U.S. 618 (1978), had held that courts could not supplement the DOHSA recovery of pecuniary damages with an award to family members under the general maritime law of nonpecuniary damages for the loss of the decedent's society (App. 54a). The District Court, however, ruled that, notwithstanding *Higginbotham*, plaintiffs could recover nonpecuniary damages for the decedent's pre-death pain and suffering. The court stated that there was a distinction between "'survival' damages and 'wrongful death' damages."[2] (App. 53a.) The court reasoned that *Higginbotham*'s holding was limited to "wrongful death" damages and did not preclude an award under a general maritime law "survival" action of damages for the decedent's pain and suffering:

> "'Like DOHSA itself, *Higginbotham* treats solely wrongful death and wrongful death damages; it does not address survival actions. Given this, *Higginbotham* cannot be read

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[2]The court explained the difference as follows: "'[A] survival action compensates the decedent's estate for damages incurred by him personally while wrongful death recovery compensates the decedent's dependents and other survivors for the damages they incurred due to the death.'" (App. 53a (quoting *Law* v. *Sea Drilling Corp.*, 523 F.2d 793, 795 (5th Cir. 1975).)

as authority for the proposition that DOHSA precludes a survival action in the case of deaths occurring on the high seas.'" (App. 54a (quoting *Azzopardi* v. *Ocean Drilling & Exploration Co.*, 742 F.2d 890, 894 (5th Cir. 1984).)

The District Court, accordingly, concluded that "Plaintiffs have viable survival claims under general maritime law" under which they could recover "pain and suffering damages." (App. 55a.) In accord with this ruling, the court awarded the estate of each decedent $50,000 for that decedent's pain and suffering (App. 58a-59a).

2. *The Court of Appeals' Decision.* On appeal, the Court of Appeals for the Eleventh Circuit affirmed the District Court's decision in all material respects (App. 1a),[3] including that court's award of survival damages for pain and suffering (App. 20a-31a). The Court of Appeals acknowledged that "recent decisions in the Ninth and District of Columbia Circuits . . . support the proposition that general maritime law survival action claims and/or pain and suffering damages are unavailable when a death occurs on the high seas." (App. 20a (citing *Saavedra* v. *Korean Air Lines Co.*, 93 F.3d 547, 554 (9th Cir.), *cert. denied*, 117 S. Ct. 584 (1996); *In re Korean Air Lines Disaster ("Dooley")*, 117 F.3d 1477, 1481-83 (D.C. Cir. 1997), *cert. granted sub nom. Dooley* v. *Korean Air Lines Co.*, No. 97-704 (Jan. 9, 1998)).) The Court of Appeals, however, characterized the Ninth and District of Columbia Circuits decisions as "unpersuasive." (App. 20a.) Instead, the court held that "the district court in this case properly followed our colleagues in the First, Third, Fifth and Eighth Circuits in recognizing a general maritime survival remedy and in

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[3]The Court of Appeals did remand the case for a determination of whether plaintiffs should have been awarded prejudgment interest (App. 32a). This claim has now been settled by agreement of the parties.

permitting this remedy to supplement appellees' recovery under DOHSA." (App. 30a-31a (footnote omitted; citing *Barbe* v. *Drummond*, 507 F.2d 794, 800 (1st Cir. 1974); *Kuntz* v. *Windjammer "Barefoot" Cruises, Ltd.*, 573 F. Supp. 1277, 1286 (W.D. Pa. 1983), *aff'd mem.*, 738 F.2d 423 (3d Cir.), *cert. denied*, 469 U.S. 858 (1984); *Azzopardi* v. *Ocean Drilling & Exploration Co.*, 742 F.2d 890, 894 (5th Cir. 1984); *Spiller* v. *Thomas M. Lowe, Jr. & Assocs., Inc.*, 466 F.2d 903, 909-10 (8th Cir. 1972)).) Lockheed now seeks review of this decision.

REASONS FOR GRANTING THE WRIT

This petition raises an important question of federal law that this Court has expressly left open in the recent past and that is likely to arise repeatedly in litigation over fatal aviation and boating accidents on the high seas: Whether the courts may supplement the award of pecuniary damages authorized by the Death on the High Seas Act with an award, under a general maritime law survival action, of nonpecuniary damages for the decedent's conscious pain and suffering.

Eight years ago, the Court in *Miles* v. *Apex Marine Corp.*, 498 U.S. 19 (1990), noted that "[s]everal Courts of Appeals have relied on *Moragne*[4] to hold that there is a general maritime right of survival."[5] The Court, however, "decline[d] to address the issue, because its resolution is unnecessary to our

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[4]In *Moragne* v. *States Marine Lines, Inc.*, 398 U.S. 375 (1970), the Court overruled *The Harrisburg*, 119 U.S. 199 (1886), and held that an action could be brought under the general maritime law for the wrongful death of a longshore worker in the state territorial waters.

[5]498 U.S. at 34 (citing *Spiller* v. *Thomas M. Lowe, Jr. & Assocs., Inc.*, 466 F.2d 903, 909 (8th Cir. 1972); *Barbe* v. *Drummond*, 507 F.2d 794, 799-800 (1st Cir. 1974); *Law* v. *Sea Drilling Corp.*, 523 F.2d 793, 795 (5th Cir. 1975); *Evich* v. *Connelly*, 759 F.2d 1432, 1434 (9th Cir. 1985)).

decision . . . ." 498 U.S. at 34.[6] Two Terms ago, the Court again left open the question of whether the pecuniary damages recovery under DOHSA may be supplemented by a recovery of nonpecuniary damages for the decedent's conscious pain and suffering. *Zicherman* v. *Korean Air Lines Co.*, 516 U.S. 217, 230 n.4 (1996) (Court states that it "need not consider . . . whether § 762 [of DOHSA] contradicts the District Court's allowance of pain and suffering damages . . ." because Korean Air Lines had not challenged that ruling in its petition for certiorari); see also *Yamaha Motor Corp., U.S.A.* v. *Calhoun*, 516 U.S. 199, 210 n.7 (1996) (Court "assume[s] without deciding that *Moragne* also provides a survival action.").

As demonstrated by the recent grant of certiorari in *Dooley* v. *Korean Air Lines Co.*, No. 97-704, the issue of whether it is permissible for courts to supplement the pecuniary damages recovery authorized by Congress is now ripe for review by the Court. First, there is a conflict in the Circuits that is both acknowledged and of recent vintage. Second, the petition presents an important and recurring question of admiralty law. Finally, the result below is at the least in conflict with the rationale employed—if not the actual holdings—of this Court's recent admiralty decisions and, moreover, raises important issues on judicial authority to enlarge upon the remedies provided by Congress.

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[6]Some four years previously, in *Offshore Logistics, Inc.* v. *Tallentire*, 477 U.S. 207 (1986), the Court had similarly declined to rule on the closely related issue of "whether the DOHSA recovery for the beneficiaries' pecuniary loss may be 'supplemented' by a recovery for the decedent's pain and suffering before death under the survival provision of some conceivably applicable state statute that is intended to apply on the high seas." *Id.* at 215 n.1.

A. There Is a Square Conflict in the Circuits.

The decision of the Eleventh Circuit in this case conflicts with two recent decisions of the Ninth and District of Columbia Circuits. The Eleventh Circuit has held that the recovery of pecuniary damages allowed by DOHSA may be supplemented by an award under the general maritime law of nonpecuniary damages for the decedent's pain and suffering (App. 30a-31a). Conversely, the Ninth and District of Columbia Circuits held in 1996 and in 1997, respectively, that such a supplemental award was impermissible. The Ninth Circuit in *Saavedra*, held that

> "because DOHSA does not allow recovery for nonpecuniary damages, we cannot 'supplement' Congress' remedy, allowing a general maritime survival action for nonpecuniary damages, including the pre-death pain and suffering claimed here." 93 F.3d at 554.

Likewise, the District of Columbia Circuit in *Dooley* ruled that DOHSA "explicitly limits the recoverable damages to pecuniary losses suffered by [the statutory beneficiaries]. These are the limits of recovery and a court may neither expand nor contract them." 117 F.3d at 1483. The court below has rejected these rulings and reached the diametrically opposite result.

Equally importantly, the decision of the Eleventh Circuit in this case has resurrected a conflict that had appeared to be dormant. Although the Eleventh Circuit relied upon decisions from the First, Third, Fifth, and Eighth Circuits upholding awards under the general maritime law for the decedent's pain and suffering,[7] those decisions had been rendered before this

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[7]App. 30a-31a (citing *Barbe* v. *Drummond*, 507 F.2d 794, 800 (1st Cir. 1974); *Kuntz* v. *Windjammer "Barefoot" Cruises, Ltd.*, 573 F. Supp. 1277, 1286 (W.D. Pa. 1983), *aff'd mem.*, 738 F.2d 423 (3d Cir.), *cert. denied*, 469 U.S. 858 (1984); *Azzopardi* v. *Ocean Drilling & Exploration Co.*, 742 F.2d

(continued...)

Court decided *Miles* v. *Apex Marine Corp.* In *Miles*, the Court re-emphasized its holding in *Mobil Oil Corp.* v. *Higginbotham* that "in an 'area covered by the statute, it would be no more appropriate to prescribe a different measure of damages than to prescribe a different statute of limitations, or a different class of beneficiaries.'" *Miles*, 498 U.S. at 31 (quoting *Higginbotham*, 436 U.S. at 625). Until the decision below, it had been possible to hypothesize that the Circuits that had previously upheld awards of supplemental damages under the general maritime law would eventually reconsider their rulings in light of this Court's decisions in *Miles* and *Higginbotham*. After all, the Ninth Circuit in *Saavedra* had recognized that this Court's decisions required it to reconsider its prior decisions allowing awards under DOHSA to be supplemented with a recovery of nonpecuniary damages under the general maritime law.[8] The decision of the Eleventh Circuit in this case has now dashed any hope that the conflict in rulings on this issue of federal law would eventually be resolved without the intervention of this Court—the conflict is now unquestionably alive.

B. This Case Raises an Important and Recurring Issue of Admiralty Law.

Now that the decision of the Eleventh Circuit has revived the conflict in the lower court decisions, one may confidently

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[7](...continued)
890, 894 (5th Cir. 1984); *Spiller* v. *Thomas M. Lowe, Jr. & Assocs., Inc.*, 466 F.2d 903, 909-10 (8th Cir. 1972)).

[8]*Saavedra*, 93 F.3d at 553:
"If [*Evich* v. *Connelly*, 759 F.2d 1432 (9th Cir. 1985), and *Evich* v. *Morris*, 819 F.2d 256 (9th Cir.), *cert. denied*, 484 U.S. 914 (1987)] were the only relevant precedents, Saavedra's argument for pre-death pain and suffering damages would be persuasive; however, several subsequent Supreme Court decisions, culminating with *Zicherman*, undoubtedly preclude such relief."

expect that the issue of whether plaintiffs may recover supplemental awards for the decedent's pain and suffering to be routinely raised in every boating and aviation accident on the high seas where there is any admissible evidence that the decedent was conscious for a period prior to death. Such questions will certainly be raised in mass tort cases occurring on the high seas where the large number of claims will ensure that any and all issues relating to available damages will be litigated. Indeed, the multidistrict judge in the litigation arising out of the crash of Trans World Airlines Flight 800 has already noted that the issue of whether damages for pain and suffering are available in DOHSA cases might be faced in that litigation. *In re Air Crash off Long Island*, 965 F. Supp. 5, 8 (S.D.N.Y. 1997) (ruling that multidistrict court will rule on common issues of damages).[9]

As the awards in this and other cases show, the amounts of damages potentially available for decedents' conscious pain and suffering are significant.[10] Hence, the issue of whether pain-and-suffering damages may be awarded in a case to which

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[9]A bill that would provide that the Death on the High Seas Act should not apply to aviation disasters passed the House of Representatives in 1997. H.R. 2005, 105th Cong., 1st Sess (1997). The prospect that this or a similar bill will pass the Senate is uncertain. Counsel will inform the Court of the enactment of any legislation pertinent to this case.

[10]The award in this case was $50,000 per decedent (App. 58a). In other cases, the awards of damages have approached or reached the six-figure level. See, *e.g.*, *Oldham* v. *Korean Air Lines Co.*, 127 F.3d 43 (D.C. Cir. 1997) (upholding awards of $100,000 per decedent for pain and suffering where defendant had failed to preserve issue of whether such damages are available); *Forman* v. *Korean Air Lines Co.*, 84 F.3d 446 (D.C. Cir.) (upholding award of $120,000 in similar circumstances), *cert. denied*, 117 S. Ct. 582 (1996); *In re Inflight Explosion*, 778 F. Supp. 625 (E.D.N.Y. 1991) (upholding a jury's award of $85,000 for decedent's pain and suffering), *rev'd on other grounds sub nom. Ospina* v. *Trans World Airlines, Inc.*, 975 F.2d 35 (2d Cir. 1992), *cert. denied*, 507 U.S. 1051 (1993).

DOHSA applies will continue to be litigated unless the issue is resolved by this Court.

C. The Decision of the Eleventh Circuit Raises Important Issues of Judicial Power To Create Extra-Statutory Remedies .

As shown above, pp. 6-7, the Court has so far declined to decide the issue of whether the remedy of pecuniary damages provided by the Death on the High Seas Act may be supplemented by an award under the general maritime law of nonpecuniary damages for the decedent's pain and suffering. Nonetheless, the provision of any such extra-statutory award is in conflict with the rationale that this Court employed in both *Mobil Oil Corp.* v. *Higginbotham* and *Miles* v. *Apex Marine Corp.* In *Higginbotham*, the Court ruled that, in a case governed by DOHSA, the survivors could not recover additional damages under the general maritime law for the loss of the decedent's society. The Court reasoned that it need not evaluate the policy arguments in favor and against awarding loss-of-society damages because "Congress has struck the balance for us. It has limited survivors to recovery of their pecuniary losses." 436 U.S. at 623. The Court explained that, when Congress "does speak directly to a question, the courts are not free to 'supplement' Congress' answer so throughly that the Act becomes meaningless." *Id.* at 625.

The Court reiterated this conclusion in *Miles* to hold, *inter alia*, that general maritime law could not be used to supplement the pecuniary damages expressly authorized by the Jones Act, 46 U.S.C. app. § 688, with an award of loss-of-society damages to the decedent's family. 498 U.S. at 32-33. The Court further ruled that, even assuming that general maritime law might provide a survival action for a seaman's death, such a survival action could not allow recovery of the decedent's lost future earnings when the Jones Act did not provide for such a

recovery: "Because [the decedent's] estate cannot recover for his lost future income under the Jones Act, it cannot do so under general maritime law." *Id.* at 36.

The Court of Appeals in this case distinguished *Higginbotham* on the ground that it dealt with a "*wrongful death*" action, while damages for the decedent's pain-and-suffering damages would be awarded in a "*survival action*." (App. 22a (emphasis in original).) This distinction elevates form over substance. The reality is that, under the ruling below, damages beyond those authorized by Congress have been awarded to the decedents' families.[11] This is precisely the sort of judicial rewriting of congressionally enacted remedies that the Court eschewed in *Miles* and *Higginbotham*.

Moreover, as just noted, *Miles* held that it was impermissible for courts to award supplemental "survival action" damages in a case under the Jones Act—a statute that does provide for a limited recovery of survival action damages.[12] *A fortiori*, it ought to be impermissible for courts to award supplemental "survival action" damages in a case under DOHSA—a statute that does not provide at all for survival action damages.

At the very least, whether correct or not, the decision of the Eleventh Circuit raises an important issue of the extent to which

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[11]See *Dooley*, 117 F.3d at 1482 ("In a death on the high seas act case, there is no relevant difference between a court's giving a decedent's nondependent niece a right of action under general maritime law, which is clearly impermissible, and allowing the decedent's estate to sue for the decedent's injuries under the general maritime law.").

[12]The Jones Act incorporates the Federal Employers' Liability Act, § 9 of which provides that "[a]ny right of action given by this chapter to a person suffering injury shall survive to his or her personal representative . . . ." 45 U.S.C. § 59. This provision does allow recovery of the decedent's pre-death pain and suffering. See, *e.g.*, *St. Louis, Iron Mt. & S. Ry.* v. *Craft*, 237 U.S. 648 (1915).

the federal courts are free to "supplement" the damages remedies authorized by Congress. The decisions in *Higginbotham* and *Miles* rested in no small part of the Court's cognizance "of the constitutional relationship between the courts and Congress." *Miles*, 498 U.S. at 37. More generally, outside of the admiralty context, the Court has stated that "'we start with the assumption' that it is for Congress, not federal courts, to articulate the appropriate standards to be applied as a matter of federal law." *City of Milwaukee* v. *Illinois*, 451 U.S. 304, 317 (1981) (footnote omitted). The Court should grant certiorari to clarify the extent to which the courts may enlarge upon the relief that Congress has chosen to grant in the pertinent statutes.

CONCLUSION

For the foregoing reasons, the petition for certiorari should be granted.

Respectfully submitted,

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January 22, 1998

APPENDIX

APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

STACY C. GRAY, individually and as Surviving Spouse of Lt. Douglas G. Gray, and as Personal Representative of Lt. Douglas G. Gray, deceased,

Plaintiff-Appellee, Cross-Appellant,

v.

LOCKHEED AERONAUTICAL SYSTEMS COMPANY, a division of Lockheed Corporation,

Defendant-Appellant, Cross-Appellee,

UNITED STATES OF AMERICA,

Defendant.

GRACE M. SCHUMACHER, individually and as Surviving Parent of Lt. John T. Hartman, and as Personal Representative of Lt. John Hartman, Deceased,

Plaintiff-Appellee, Cross-Appellant,

v.

LOCKHEED AERONAUTICAL SYSTEMS COMPANY, a division of Lockheed Corporation,

Defendant-Appellant, Cross-Appellee,

UNITED STATES OF AMERICA,

Defendant.

WILMA J. JENNINGS, individually, and as Surviving Parent of Lt. David S. Jennings, and as Personal Representative of Lt. David S. Jennings, Deceased,

Plaintiff-Appellee, Cross-Appellant,

v.

LOCKHEED AERONAUTICAL SYSTEMS COMPANY, a division of Lockheed Corporation,

Defendant-Appellant, Cross-Appellee,

UNITED STATES OF AMERICA,

Defendant.

No. 95-8459

October 24, 1997

Appeals from the United States District Court for the Northern District of Georgia.

Before HATCHETT, Chief Judge, TJOFLAT, Circuit Judge, and CLARK, Senior Circuit Judge.

HATCHETT, Chief Judge:

Appellant, Lockheed Aeronautical Systems Company (Lockheed), appeals from a district court order in favor of the appellees, Stacy Gray, Grace Schumacher and Wilma Jennings. The appellees, survivors of three naval aircraft crewmembers who were killed after ejecting from a crashing Lockheed-manufactured aircraft, filed actions against Lockheed for wrongful death and survival remedies on strict liability and negligence claims under the Death on the High Seas Act, 46 U.S.C. App. §§ 761-768 (DOHSA), and general maritime law. Lockheed invoked the military contractor defense under *Boyle v. United Technologies Corp.*, 487 U.S. 500, 108 S. Ct. 2510, 101 L. Ed. 2d 442 (1988). After a bench trial, the district court

denied that defense, found Lockheed liable, and awarded damages to the appellees. The district court did not award prejudgment interest to appellees. We remand on the determination of prejudgment interest and affirm the judgment of the district court in all other respects.

BACKGROUND

On October 7, 1989, appellees' decedents, Lt. Douglas G. Gray, Lt. John T. Hartman and Lt. (j.g.) David S. Jennings, were killed and Air Warfare Technician Second Class (AW2) Tracy Mann was injured when they ejected from a S-3 "Viking" jet aircraft (S-3) shortly before the aircraft crashed into the sea.[1] Lockheed manufactured and sold the S-3 to the United States Navy in 1975. In the 1960s, the Navy sought proposed designs for a new antisubmarine warfare aircraft (ASW) to neutralize the threat that submarines posed. Lockheed submitted its request for proposal, the Navy accepted, and the S-3 became the Navy's new ASW aircraft. Navy engineers and Lockheed employees worked closely together on many aspects of the S-3's development, and the Navy held a series of preliminary design reviews and critical design reviews. Upon completion of its manufacture, the S-3 passed all of the Navy's acceptance tests, and Lockheed delivered the S-3 to the Navy.

At the time of their deaths, the decedents were all naval officers assigned to the U.S.S. John F. Kennedy (the JFK), an aircraft carrier. On the day of the crash, the decedents boarded a S-3 on the JFK, which was located 125 miles off the coast of Virginia, as part of naval flight operations. Gray, the pilot of the S-3, sat in the left-front seat, and Hartman, the mission commander, sat in the right-front seat. Mann, the sensor

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[1]For a fuller explanation of facts, see *Gray v. Lockheed Aeronautical Systems Co.*, 880 F. Supp. 1559 (N.D. Ga.1995).

operator and the only crash survivor, sat in the left-rear seat, and Jennings, the tactical coordinator, sat in the right-rear seat.

Prior to flying the S-3, Gray and other crewmembers properly conducted the required preflight checks. Gray verified that the S-3's control surfaces (*i.e.*, the ailerons, spoilers, and elevators) worked properly. Gray executed a "control wipeout," which means he moved the pilot's control stick laterally and longitudinally through its range of motion. That maneuver allowed the aircrew and sailors on the JFK's deck to observe the movement of the control surfaces. After Gray properly configured the control surfaces for takeoff, the S-3 was catapulted from the deck of the carrier in order to give it sufficient speed to achieve flight.

With both engines at full power and sounding normal, the S-3's launch appeared normal; the S-3's wings were leveled and it began a shallow climb. After approximately two seconds, Gray initiated a slow right roll by moving the control stick to the left. Gray attempted to halt the roll when the S-3 reached 20 degrees of bank angle, the normal bank angle for clearing a turn. The S-3 failed to respond to Gray's movement of the control stick and continued the right roll. When the S-3 reached 45 degrees of bank angle, Mann heard Gray exclaim "Oh my God! Eject! Eject! Eject!" Hartman immediately initiated the sequence that would eject all four occupants from the S-3. Mann and Jennings, the two rear occupants, ejected first when the S-3 reached 90 degrees of right bank angle; and Gray and Hartman ejected when the S-3 was at or beyond 120 degrees of right bank angle. Their parachutes having scarce time to open, all three decedents struck the water with great force and suffered fatal bodily injuries upon impact with the water.

Appellees blame the S-3's crash in part on design defects in the S-3's aileron servo (the servo). Part of the S-3's flight control system, the servo is contained in the S-3's fuselage and

it links the pilot with the ailerons. An aileron is "a movable part of an airplane wing or a movable airfoil external to the wing at the trailing edge for imparting a rolling motion and thus providing lateral control." *Webster's New Collegiate Dictionary* 24 (1979). On the S-3, a cable connects the pilot's control stick to the servo's input arm, and a rod from a ram mounted inside the servo passes through the S-3's wings and attaches to the ailerons.

The S-3 has two jet engines that drive separate hydraulic pumps. The two hydraulic pumps each power a hydraulic system, creating 3000 pounds per square inch (psi) of hydraulic pressure in each system. Ordinarily, the servo functions in the "powered" mode using hydraulic power. In this mode, the pilot has no mechanical link with the ailerons. Instead, the pilot's movement of the control stick triggers a sequence of functions causing hydraulic pressure in the servo to raise or lower the ailerons. If a hydraulic failure occurs, the servo should automatically switch to "manual" mode, a process known as the Emergency Flight Control System (EFCS). A latch and pin located inside the servo are key to the operation of the EFCS. "When the hydraulic pressure in both systems drops below 800 psi, a shutoff valve at the bottom of the servo should 'trip,' cutting off all hydraulic pressure in the servo. The absence of hydraulic pressure in the servo allows the springs to expand; this expansion should move the pin into the latch, an event called 'latch-up.'" *Gray*, 880 F. Supp. at 1563. Once EFCS latch-up occurs, the pilot has a direct mechanical link to the ailerons but has to use more effort to move the control stick.

Although Lockheed designed, manufactured, and sold the S-3 to the Navy, Lockheed subcontracted the manufacturing of the S-3's servo to the Bertea Corporation (Bertea), which is now a subsidiary of the Parker-Hannifin Corporation. Bertea also developed the acceptance test procedure (ATP) for the servo. An ATP tests whether a product performs in accordance with its

design specifications. The district court found that the ATP Bertea developed for the servo had several shortcomings. Although very important, the ATP did not measure the speed of the EFCS latch-up; nor did the ATP test the servo's operation while subjected to simulated flight demands.

In the spring of 1990, the Navy recovered the crashed S-3. Post-crash testing of the servo revealed some malfunctions and deviations from design specifications. First, Douglas Crawford, a Lockheed engineer, found when he "deviated from the ATP and moved the servo's input arm to stimulate commands from the control stick, the servo's shutoff valve tripped at 1400 psi, not the specified 800 psi." *Gray*, 880 F. Supp. at 1564. "The servo's shutoff valve 'sensed' 800 psi, even though the actual pressure was 1400 psi." *Gray*, 880 F. Supp. at 1564. Second, Crawford observed a chip on the pin involved in the EFCS latch-up process, and concluded "the chip showed the pin had been fluctuating in and out of the latch due to hydraulic pressure fluctuation in the servo." *Gray*, 880 F. Supp. at 1564. Third, although the specifications for the pin and latch both required a measurement of .3750, plus or minus .0001, the components here failed to meet that measurement; the pin measured .3749 but the latch measured .3740. Jesse Dooman, one of the appellees' expert witnesses, testified, and the district court found, "that the out-of-tolerance latch would adversely affect the speed of latch-up." *Gray*, 880 F. Supp. at 1564.

The district court ruled the following sequence of events probably led to the crash of the S-3:

> All systems on the S-3 were working properly when it was hooked to the catapult. However, as the S-3 traveled down the catapult, one of its hydraulic systems suffered a complete failure. Contrary to expectations, pressure in the remaining hydraulic system dropped because of the added demands for hydraulic power it had to satisfy with the loss of the other

system. Lt. Gray's initiation of the right roll, which necessarily moved the servo's input arm, caused the servo to attempt to transition into EFCS at 1400 psi. However, the low, fluctuating hydraulic pressure, coupled with the shutoff valve's operation at a higher-than-specified pressure, caused the servo to chatter at millisecond intervals between the powered and manual modes. The friction in the EFCS mechanism and a mis-sized latch impeded the servo's ability to transition swiftly into EFCS. The chattering caused (1) the freezing of the ram in the right roll position (with an attending freezing of the aileron in the same position) and (2) the condition known as "free stick," in which Lt. Gray's movement of the control stick did not translate into any movement of the control surfaces. The S-3 thus continued the smooth right roll noted above until impact with the ocean.

Gray, 880 F. Supp. at 1566.

CONTENTIONS

Lockheed contends that the military contractor defense barred appellees' claim for the servo's alleged defective design. According to Lockheed, the district court misapplied the standards for application of the defense; acted unreasonably in requiring Lockheed to produce evidence that the Navy reviewed and approved specific engineering drawings of the servo; and incorrectly rejected as insufficient the narrative descriptions that Lockheed introduced of the servo. Lockheed maintains that the Navy exercised final responsibility for the S-3's entire design; closely reviewed and approved the design specifications of the servo; and found that the servo complied with its relevant specifications. Lockheed further contends that the district court erred in finding Lockheed strictly liable for a defectively designed servo. In Lockheed's estimation, the district court adopted a theory of causation that Navy experts specifically

rejected; made insufficient findings; and failed to require appellees to prove a reasonable alternative design for the servo that would have prevented the accident. Lockheed argues that it cannot be held liable in negligence because it neither manufactured nor installed the replacement servo in the crashed S-3. The Navy, Lockheed also adds, approved the ATP for the servo.

Lockheed also contends that DOHSA limits recovery to pecuniary loss and bars the award of pain and suffering damages in this case. According to Lockheed, the Supreme Court also has not clearly recognized a "general maritime right of survival." Additionally, Lockheed contends that the district court failed to provide sufficient explanation for the damages it awarded and to find three of the critical components of loss of support—rates of growth, consumption, and discount. Finally, Lockheed asserts that the determination of prejudgment interest should be remanded to the district court as the district court may have denied prejudgment interest because the appellees filed an untimely request.

The appellees contend that Lockheed did not satisfy the conditions for the military contractor defense. According to the appellees, Lockheed's bid to win the S-3 contract from the Navy had no detailed design specifications for the servo; Lockheed produced no detailed specifications of the servo; and the narrative specifications Lockheed did introduce were inadequate. The appellees also argue that Lockheed had final approval over the servo's design, and the Navy's post-contract review did not constitute approval of that design. Moreover, appellees contend that the Navy's continuing purchase of the servo provides no proof that the servo met reasonably precise specifications, and further contend that the servo did not conform to the Navy's general specifications.

Appellees additionally contend that the district court applied the correct theory of causation and found Lockheed strictly liable. Requiring a plaintiff to produce evidence of an alternative design, appellees argue, places an undue burden on a plaintiff, where the original product fails to function because of a design defect. Appellees assert the record contains abundant evidence of alternative designs for the servo. Appellees also contend that Lockheed's failure to ensure an adequate ATP for the servo constituted negligence. Appellees note that Lockheed produced no evidence that the Navy approved or controlled the ATP, and further observe that the only competent evidence showed that Lockheed and Bertea controlled the ATP.

Appellees also maintain that DOHSA does not preclude the award of pain and suffering damages under general maritime survival action claims, and that the Supreme Court has never precluded a general maritime survival recovery. In addition, appellees argue that the district court sufficiently explained its basis for awarding damages; had no duty to make specific findings regarding the rates used to calculate growth, consumption or discount; and considered the appropriate factors, *i.e.*, lifetime earnings, taxes, personal consumption, and present value, to determine pecuniary loss. Appellees also cross-appeal contending that the district court erred in failing to award prejudgment interest.

ISSUES

Lockheed raises the following issues on appeal: (1) whether the district court erred in rejecting Lockheed's military defense contractor defense; (2) whether the district court erred in finding Lockheed strictly liable for a design defect; (3) whether the district court erred in finding Lockheed negligent for an inadequate "acceptance test procedure"; and (4) whether the district court erred in its award of damages. Appellees raise one

issue on cross-appeal: whether the district court erred in failing to award prejudgment interest.

DISCUSSION

A. Standard of Review

We review the district court's conclusions of law de novo but do not disturb findings of fact unless they are clearly erroneous. *Godfrey v. BellSouth Telecommunications, Inc.*, 89 F.3d 755, 757 (11th Cir.1996).

B. The Military Contractor Defense

Appellees argue that a design defect in the servo, a part of the S-3's flight control system, caused the aircraft to crash. Although Lockheed denied liability, Lockheed invoked the military contractor defense for immunity. In *Boyle v. United Technologies Corp.*, 487 U.S. 500, 108 S. Ct. 2510, 101 L. Ed. 2d 442 (1988), the Supreme Court held that, under certain circumstances, government contractors are shielded from state tort liability for equipment manufactured for our nation's military. This "defense derives from the principle that where a contractor acts under the authority and direction of the United States, it shares the sovereign immunity" that the government enjoys. *Harduvel v. General Dynamics Corp.*, 878 F.2d 1311, 1316 (11th Cir.1989) (citation omitted), *cert. denied*, 494 U.S. 1030, 110 S. Ct. 1479, 108 L. Ed. 2d 615 (1990). The displacement of liability occurs "only where . . . a 'significant conflict' exists between an identifiable 'federal policy or interest and the [operation] of state law' . . . or the application of state law would 'frustrate specific objectives' of federal legislation.'" *Boyle*, 487 U.S. at 507, 108 S. Ct. at 2516 (citation omitted). Stripped to its essentials, the military contractor defense is available only when the defendant demonstrates with respect to its design and manufacturing decisions that "the government

made me do it." *In re Joint Eastern and Southern District New York Asbestos Litigation*, 897 F.2d 626, 632 (2d Cir.1990).

The Supreme Court established a three-part test in *Boyle* to determine when the military contractor defense applies. A contractor seeking immunity from liability for design defects in military equipment must prove that:

> (1) the United States approved reasonably precise specifications; (2) the equipment conformed to those specifications; and (3) the supplier warned the United States about the dangers in the use of the equipment that were known to the supplier but not to the United States.

Boyle, 487 U.S. at 512, 108 S. Ct. at 2518. The first two conditions of the *Boyle* test "assure that the design feature in question was considered by a government officer, and not merely by the contractor itself." 487 U.S. at 512, 108 S. Ct. at 2518. The third condition serves to eliminate any incentive that the military contractor defense might create for contractors to withhold knowledge of risks. *Boyle*, 487 U.S. at 512, 108 S. Ct. at 2519.

1. First *Boyle* condition

To establish the first Boyle condition, the contractor must prove that the military approved "reasonably precise specifications" for the equipment. This condition requires the existence of two factors: reasonably precise specifications and government approval of them. The Fifth Circuit in *Trevino v. General Dynamics Corp.*, 865 F.2d 1474 (5th Cir.), *cert. denied*, 493 U.S. 935, 110 S. Ct. 327, 107 L. Ed. 2d 317 (1989), defined "reasonably precise specifications" as

> [t]he requirement that the specification be precise means that the discretion over significant details and all critical design choices will be exercised by the government. If the government approved imprecise or general guidelines, then

> discretion over important design choices would be left to the government contractor.

865 F.2d at 1481. The contractor must show that the Navy "actually participated in discretionary design decisions, either by designing [the servo] itself or approving specifications" that the contractor prepared. *Harduvel*, 878 F.2d at 1316.

In reviewing the record, several considerations inform our analysis. Where the government merely approves imprecise or general guidelines, the contractor retains the discretion over the important design decision and enjoys no immunity against liability based on the *Boyle* defense. *Trevino*, 865 F.2d at 1481. A finding that the military approved the specifications requires more than a tacit approval: the approval must be meaningful, not a mere formality. *Oliver v. Oshkosh Truck Corp.*, 96 F.3d 992 (7th Cir.1996), *cert. denied*, — U.S. —, 117 S.Ct. 1246, 137 L. Ed. 2d 328 (1997); *Trevino*, 865 F.2d at 1481 (approval involves more than a "rubber stamp"). In *Harduvel*, this court explained that a contractor may satisfy the first condition where the design of the product resulted from a "'continuous back and forth'" between the military and the contractor. *Harduvel*, 878 F.2d at 1320 (citation omitted).

After careful review of the record, we conclude that the district court did not err in ruling that Lockheed failed to satisfy the first Boyle condition. Lockheed presented no evidence that the Navy approved reasonably precise specifications for the servo. The district court requested a copy of the servo's engineering drawings, and Lockheed only produced a general narrative description of the servo's specifications entitled "Equipment Specifications—Power Servos, Primary Flight Controls." Lockheed had prepared this narrative before the Navy's procurement process for S-3 and incorporated it into its bid to the Navy for the S-3's contract. The document simply sets forth the general requirements for the aileron servo, *i.e.*,

automatic reversion if both hydraulic systems fail, and servos with manual reversion on ailerons. The Fourth Circuit explained in *Kleemann v. McDonnell Douglas Corp.*, 890 F.2d 698 (4th Cir.1989), *cert. denied*, 495 U.S. 953, 110 S. Ct. 2219, 109 L. Ed. 2d 545 (1990), that

> military hardware does not suddenly spring into being from initial design and procurement specifications, but evolves through drawings, blueprints and mockups agreed upon by the parties. *See Harduvel*, 878 F.2d at 1320-21; *Ramey*, 874 F.2d at 948 n. 4-5. The ultimate design of the product is determined not only by the original procurement and contract specifications, but also by specific, quantitative engineering analysis developed during the actual production process.

Kleemann, 890 F.2d at 702. We conclude that although the narrative may embody some aspects of the servo's specifications, it does not comprise the precise design specifications that the *Boyle* test requires. We also conclude that even though Lockheed subcontracted the responsibility for manufacturing the servo to Bertea, Lockheed retained ultimate discretion over design and testing procedures for the servo.

2. Second *Boyle* condition

To demonstrate the second *Boyle* condition, a contractor must show that the equipment at issue conformed to precise, government-approved specifications. While the record lacks evidence of any reasonably precise specifications of the servo's design, this court assumes nonetheless that the Navy approved the narrative description that Lockheed alleges as the servo's specifications. In *Harduvel*, this court explained: "To say that a product failed to conform to specifications is just another way of saying that it was defectively manufactured." 878 F.2d at 1321. Nonconformance, however, means more than that the ultimate design feature does not achieve its intended goal. The

alleged defect must exist independently of the design itself; it must result from a deviation from the required military specifications. *See Kleemann*, 890 F.2d at 703.

A contractor may show conformity through evidence that the military was "present and actively involved throughout the design, review, development and testing of the [equipment at issue]." *In re Air Disaster at Ramstein Air Base, Germany on 8/29/90*, 81 F.3d 570, 575 (5th Cir.), *amended on denial of reh'g*, 88 F.3d 340 (5th Cir.), *cert. denied*, — U.S.—, 117 S. Ct. 583, 136 L. Ed. 2d 513 (1996). In *Kleemann*, the Fourth Circuit expounded "where the procurement process involves this kind of continuous exchange between the contractor and the government, the process itself becomes persuasive evidence of the product conformity to precise specifications." 890 F.2d at 702. Additionally, such evidence tends to show that the government retained discretion and the contractor had no freedom to deviate from the government's specifications. *Trevino*, 865 F.2d at 1481.

Even if this court relies on the narrative description as a specification, the record does not support Lockheed's contention that it satisfied the second *Boyle* condition. The basic design of the servo called for an automatic manual reversion system or EFCS that operated without a hazardous lag. In the event of a hydraulic failure, the EFCS causes the flight controls to instantly revert to a manual operation mode enabling the pilot to control and safely land the aircraft. The servo at issue did not meet those specifications. The district court found that chattering in the servo demonstrated that it suffered from a hazardous lag and that the pilot's control stick had to be within 60 percent of its centered position in order for the EFCS latch-up mechanism to occur. *Gray*, 880 F. Supp. at 1567. Those defective and unspecified conditions affected the operation of the automatic manual reversion system.

Additional evidence showed defects in two key components that the servo uses when it goes into the manual reversion mode. The pin and latch which link the pilot's control stick with the ailerons did not meet their specified dimensions of .3750, plus or minus .0001; the pin measured .3749, but the latch measured .3740.[2] The district court found that the out-of-tolerance latch could adversely affect the speed of the latch-up; and that "friction in the EFCS mechanism and a mis-sized latch impeded the servo's ability to transition swiftly into EFCS." *Gray*, 880 F. Supp. at 1566. Moreover, the shutoff valve in the servo operated at a higher-than-specified pressure; the servo attempted transition into the EFCS at 1400 psi, instead of the specified 800 psi.

We conclude that Lockheed failed to satisfy the second condition for the application of the military contractor defense. The above-described defects clearly demonstrate that the servo did not conform to its specifications. *See Harduvel*, 878 F.2d at 1317 (No federal interest are implicated "where a defect is merely an instance of shoddy workmanship . . . ."). The shortcomings with the EFCS and the positioning of the control stick demonstrate that the servo failed to achieve its most important design specification, *i.e.*, having an automatic manual reversion system that operated without a hazardous lag. The fact that the Navy continuously used the S-3 and actually replaced the servo in the crashed S-3 does not prove that the servo conformed to precise, Navy-approved specifications.

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[2]The district court found the latch measured .3746 and the pin measured .37487. This court finds that those measurements were of the elevator servo, not the aileron servo; the elevator servo was also found to be out of tolerance.

3. Third *Boyle* condition

A contractor may satisfy the third *Boyle* condition through evidence that it warned the government of all the dangers known to it, but not to the government. Having denied the *Boyle* defense on the first two conditions, the district court did not address the third condition. We nonetheless consider this element and conclude that Lockheed failed to warn the Navy and to ascertain the nature of the flight control problems. The operations manual that Lockheed prepared for the S-3 does not warn pilots about how critical the positioning of the control stick is to effect an emergency latch-up. Without that information, Gray did not realize that the control stick had to be within 60 degrees of the centered position for the EFCS mechanism to occur. Lockheed should have explained that under certain circumstances, the pilot must act affirmatively moving the control stick within 60 degrees of its centered position to engage the automatic manual reversion system. Furthermore, the Navy's involvement in the development of the S-3 does not satisfy the threshold showing of adequate warning for that aircraft's servo. *See Kleemann*, 890 F.2d at 701.

C. Strict Liability Claims

We next consider whether the district court erred in finding Lockheed strictly liable for a defectively designed aircraft. A plaintiff may bring a strict liability claim under DOHSA, which sets forth a general standard for imposing liability. *See, e.g., Pavlides v. Galveston Yacht Basin, Inc.*, 727 F.2d 330, 338 (5th Cir.1984); *Lindsay v. McDonnell Douglas Aircraft Corp.*, 460 F.2d 631, 635 (8th Cir.1972). We follow the Restatement (Second) of Torts § 402A for the generally accepted principles of tort law. Section 402A outlines the elements of a products liability claim:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user . . . is subject to liability

> for physical harm thereby caused to the ultimate user . . . if (a) the seller is engaged in the business of selling such a product, and (b) it is expected to and does reach the user . . . without substantial change in the condition in which it is sold.
>
> (2) The rule stated in Subsection (1) applies although (a) the seller has exercised all possible care in the preparation and sale of his product, and (b) the user . . . has not bought the product from or entered into any contractual relation with the seller.

Restatement (Second) of Torts § 402A (1965).

Upon review of the record, we hold that the district court correctly found Lockheed strictly liable for the defective condition of the S-3 at issue. Although the S-3's design specifications called for an automatic reversion system, the EFCS of the servo at issue was not completely automatic. Under certain circumstances the servo would chatter between the powered and manual modes because of excessive friction in the EFCS mechanism. The chattering in the crashed S-3's servo froze the ram in the right roll position and caused the free-stick condition. The servo's design did not accommodate the free-stick phenomenon. The district court ruled that "the catastrophic effect of the free stick condition Lt. Gray consequently faced showed that the defective condition was unreasonably dangerous." *Gray*, 880 F. Supp. at 1568. Because the record supports the district court's order, we conclude that the S-3 at issue had a defective condition because of its servo; the defective servo made the S-3 unreasonably dangerous; the defect existed independently of the manufacturing defect; and the defective condition of the S-3 caused the death of the

appellees' decedents.[3] Moreover, the record contains incidents where other pilots experienced similar uncommanded rolls or free-stick, and subsequent investigations considered failures with the servo as a possible explanation.

D. Negligence Claims

We now consider whether the district court erred in finding Lockheed liable for negligence because of an inadequate ATP. Concepts of products liability, based on negligence, are recognized as part of general maritime law. *East River Steamship Corp. v. Transamerica Delaval Inc.*, 476 U.S. 858, 865-866, 106 S. Ct. 2295, 2299-2300, 90 L. Ed. 2d 865 (1986). This court relies on the standard of negligence set forth in the *Restatement (Second) of Torts* §§ 282-283 (1965). Section 282 provides: "[N]egligence is conduct which falls below the standard established by law for the protection of others against unreasonable risk of harm. It does not include conduct recklessly disregardful of an interest in others." Section 283 provides: "Unless the actor is a child, the standard of conduct to which [the actor] must conform to avoid being negligent is that of a reasonable [person] under like circumstances." Restatement (Second) of Torts §§ 282-283 (1965). These sections essentially define negligence as an act or omission that creates an unreasonable risk of harm; or conduct that falls below what a reasonable person in similar circumstances would have done.

After careful review of the facts and circumstances, we are convinced that the district court properly found Lockheed liable for negligence. Under the negligence standard, Lockheed had

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[3]The manufacturing defect along with the design defect may have jointly aggravated the condition of the servo. The district court found that "friction in the EFCS mechanism and [the] mis-sized latch impeded the servo's ability to transition the swiftly into the EFCS." Gray, 880 F. Supp. at 1566.

a duty to construct an adequate testing procedure for the servo. The evidence shows, however, that Lockheed developed an inadequate ATP and breached its duty. The ATP Lockheed used had no provision for testing the speed of the latch-up mechanism even though Lockheed knew or should have known a transition lag between the powered and manual modes would be hazardous. The district court also found if the ATP had simulated flight demands, Lockheed would have "discovered the friction the EFCS mechanism generated, the tripping of the shutoff valve at higher-than-specified pressures . . . and the fact that the control stick had to be within 60 percent of its centered position for the latch-up to occur." *Gray*, 880 F. Supp. at 1569. Accordingly, we conclude that the servo was a unique and untested flight control component which Lockheed developed specifically for the S-3. Lockheed's failure to develop an adequate ATP for the servo created an unreasonable risk of harm, resulting in the crash of the S-3 at issue and the death of the appellees' decedents. A standard and adequate ATP would have revealed the servo's mis-sized latch and pin regardless of its manufacturer.

E. Damages

Having found that the district court properly held Lockheed liable for appellees' wrongful death and survival claims, we now turn to the issue of damages. The district court awarded two types: wrongful death damages and survival damages. Recognizing DOHSA as the exclusive basis for appellees' wrongful death claims, the district court ruled appellees could recover damages for loss of support, loss of services, and funeral expenses. After finding the appellees had viable survival action claims under general maritime law, the district court ruled the appellees could recover damages for pain and suffering on the survival action claims. The district court awarded the following damages: loss of support to Gray's wife ($1.5 million), to Hartman's mother and wife ($1.2 million),

and to Jennings's mother ($600,000); loss of services to Gray's wife ($300,000), to Hartman's mother and wife ($300,000), and to Jennings's mother ($175,000); pain and suffering to each appellee as the personal representative of her decedent's estate ($50,000 each).

Lockheed challenges the district court's ruling on damages on two grounds: (1) the availability of pain and suffering damages for appellees' survival action claims and (2) the computation of damages. First, we consider whether the district court erred in awarding pain and suffering damages for appellees' survival action claims under general maritime law.

1. Availability of pain and suffering damages

Lockheed relies on the Supreme Court's decisions in *Mobil Oil Corp. v. Higginbotham*, 436 U.S. 618, 98 S. Ct. 2010, 56 L. Ed. 2d 581 (1978), and *Zicherman v. Korean Air Lines Co., Ltd.*, 516 U.S. 217, 116 S. Ct. 629, 133 L. Ed. 2d 596 (1996), as well as recent decisions in the Ninth and District of Columbia Circuits to support the proposition that general maritime law survival action claims and/or pain and suffering damages are unavailable when a death occurs on the high seas. *See Saavedra v. Korean Air Lines Co., Ltd.*, 93 F.3d 547, 554 (9th Cir.) ("because DOHSA does not allow recovery for nonpecuniary damages, we cannot 'supplement' Congress' remedy, allowing a general maritime survival action for nonpecuniary damages, including . . . pre-death pain and suffering"), *cert. denied*, — U.S. —, 117 S. Ct. 584, 136 L. Ed. 2d 514 (1996); *Dooley v. Korean Air Lines Co., Ltd. (In re Korean Air Lines Disaster of September 1, 1983)*, 117 F.3d 1477, 1481-83 (D.C.Cir.1997) (same).

We find these cases either inapposite or unpersuasive. With respect to the Supreme Court's decisions, we observe that the Court's recent *Zicherman* decision expressly leaves open the question of whether DOHSA forecloses a non-DOHSA based

pain and suffering award. *See Zicherman*, — U.S. at — n. 4, 116 S. Ct. at 636 n. 4;[4] *see also Offshore Logistics, Inc. v.*

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[4]*Zicherman* resolved a dispute over whether a plaintiff suing under the Warsaw Convention may recover loss-of-society damages for the death of a relative in a plane crash occurring on the high seas. The Court held that the compensable harm in such a lawsuit is determined with reference to DOHSA, and that DOHSA's limitation of recovery to pecuniary damages barred recovery of loss-of-society damages even if such damages would be recoverable under general maritime law or state law. — U.S. at — - —, 116 S. Ct. at 632-37. Specifically, the Court stated that "*where DOHSA applies*, neither state law nor general maritime law can provide a basis for recovery of loss-of-society damages." —U.S. at —, 116 S. Ct. at 636 (internal citations omitted) (emphasis added). The plain language of DOHSA covers damages that a wrongful death causes to a decedent's wife, husband, parent, child or dependent relative. See 46 U.S.C.App. §§ 761 and 762. The loss-of-society damages sought in *Zicherman* were intended to compensate Zicherman's sister and mother for the loss of Zicherman's "love, affection and companionship" arising from Zicherman's wrongful death. *Zicherman*, — U.S. at —, 116 S. Ct. at 631. As a result, the damages sought would have awarded Zicherman's sister and mother—both designated DOHSA beneficiaries—relief which the plain language of DOHSA precluded them from receiving.

The case at bar does not involve an allegation of error with respect to the award of loss-of-society damages to designated DOHSA beneficiaries. Rather, it involves an alleged error in awarding pain and suffering damages to the personal representatives of the estates of the decedents under a survival action, that is to say, an award to beneficiaries not identified in DOHSA under a recognized cause of action that is wholly distinct from a wrongful death action. *See* Sea-Land Services v. Gaudet, 414 U.S. 573, 575 n. 2, 94 S. Ct. 806, 810 n. 2, 39 L. Ed. 2d 9 (1974) (explaining the distinction between wrongful death actions and survival actions); *see also* Magruder & Graut, Wrongful Death Within the Admiralty Jurisdiction, 35 Yale L.J. 395, 405 n. 46 (1926) (indicating that a survival action permits the personal representative of a decedent to recover for the cause of action accruing to the decedent in his lifetime for an invasion of his right to personal security, while a wrongful death action creates a new right of action in favor of the next of kin based, "not upon the initial invasion of the decedent's right to personal security, but rather on the wrongful act of

(continued...)

Tallentire, 477 U.S. 207, 215 n. 1, 106 S. Ct. 2485, 2490 n. 1, 91 L. Ed. 2d 174 (1986) (declining to address the question of whether a DOHSA recovery can be supplemented with pain and suffering recovery under an applicable state law survival action statute). Likewise in *Higginbotham*, the Supreme Court recognized DOHSA as providing the sole remedy in actions for *wrongful death* occurring on the high seas, but did not directly address the question of whether a *survival action* based on general maritime law could be maintained in conjunction with a DOHSA wrongful death action. *See Azzopardi v. Ocean Drilling & Exploration Co.*, 742 F.2d 890, 893-94 (5th Cir.1984). "Given this, *Higginbotham* cannot be read as authority for the proposition that DOHSA precludes a survival action in the case of death occurring on the high seas." *Azzopardi*, 742 F.2d at 894. Indeed, dicta from at least one other Supreme Court decision affirmatively suggests that DOHSA does not eliminate the availability of an otherwise proper survival action when a death occurs on the high seas. *See Kernan v. American Dredging Co.*, 355 U.S. 426, 430 n. 4, 78 S. Ct. 394, 397 n. 4, 2 L. Ed. 2d 382 (1958) ("Where death

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[4](...continued)
bringing him in contact with a fatal force").

We recognize that the net effect of an award of survival action damages to the personal representatives of the estates in this case may ultimately result in additional payments to some designated DOHSA beneficiaries, but such payments, if they occur at all, will only devolve to those beneficiaries through the decedents' estates, and will be for damages of a kind not contemplated under DOHSA. This last distinction--regarding the kind of damages--is a subtle one, but highly significant when assessing the relevance *vel non* of *Zicherman* here. *Zicherman*, in our view, stands for the proposition that DOHSA governs the award of all damages flowing from wrongful death—i.e., the losses to beneficiaries of a decedent flowing from the decedent's demise. Zicherman does not, in our view, stand for the proposition that DOHSA also operates to bar the award of damages flowing from the losses which the decedent *personally* experienced prior to death.

occurs beyond a marine league from state shores, the Death on the High Seas Act provides a remedy for wrongful death. Presumably any claims, based on unseaworthiness, for damages accrued prior to the decedent's death would survive, at least if a pertinent state statute is effective to bring about a survival of the seaman's right.") (emphasis added) (internal citations omitted).

The foregoing observations convince us and our colleagues in the Fifth Circuit that the Supreme Court has simply not expressed a clear opinion on the matter at issue here. The Ninth and District of Columbia Circuits, however, have viewed the matter differently. In *Saavedra v. Korean Air Lines Co., Ltd.*, the Ninth Circuit considered the question of the damages available to the personal representative for the estates of three passengers of a Korean airliner that a Soviet military aircraft shot down over the Sea of Japan. The personal representative argued, in part, that a decedent's estate can bring a survival action claim for pre-death pain and suffering under general maritime law, even though that cause of action is unavailable under DOHSA. *Saavedra*, 93 F.3d at 553. Relying heavily on the Supreme Court's DOHSA decisions in *Higginbotham* and *Zicherman*, the Ninth Circuit rejected the personal representative's argument. Specifically, the Ninth Circuit read the Supreme Court's decisions to hold that DOHSA imposes a complete legislatively designed bar on the recovery of nonpecuniary damages, which the courts are not free to circumvent via the authorization of a general maritime survival action claim for nonpecuniary damages. 93 F.3d at 553-54.

The District of Columbia Circuit followed and elaborated upon the rationale of *Saavedra* in *Dooley v. Korean Air Lines Co., Ltd.*, a case which also arose from the Sea of Japan Korean airliner tragedy. In *Dooley*, the District of Columbia Circuit concluded that DOHSA reflects a conscious congressional choice to limit benefits and remedies in cases arising on the high

seas, and that those limits eliminate the discretion of courts to recognize a survival remedy under general maritime law. 117 F.3d at 1481-83. As evidence of this conscious congressional intent, the *Dooley* court first noted that the Jones Act—which was enacted at almost the same time as DOHSA—contains a survival remedy, while DOHSA does not. 117 F.3d at 1481-82. According to the *Dooley* court, the inclusion of a survival remedy in the Jones Act but not in DOHSA "scarcely seems inadvertent." 117 F.3d at 1482. The *Dooley* court also cited language from *Higginbotham* where the Supreme Court allegedly indicated that DOHSA "expressed a congressional "judgment on such issues as . . . survival, and damages.'" *Dooley*, 117 F.3d at 1482 (citing *Higginbotham*, 436 U.S. at 625, 98 S. Ct. at 2015).

We agree with the *Saavedra* and *Dooley* courts that the availability of a general maritime law survival remedy turns on Congress's intent in passing DOHSA. *See Dooley*, 117 F.3d at 1481 ("Judge-made general maritime law may not override . . . congressional judgments, however ancient those judgments may happen to be."). In this instance, though, we believe the *Saavedra* and *Dooley* courts misread Congress's intent regarding the preclusive scope of DOHSA.

Our analysis of Congress's intent, of course, must begin with the plain language of DOHSA. *See United States v. Oboh*, 92 F.3d 1082, 1084-85 (11th Cir.1996) (*en banc*) (statutory analysis begins with plain language and if the language is unambiguous, the first step of analysis is also the last), *cert. denied*, — U.S. —, 117 S. Ct. 1257, 137 L. Ed. 2d 337, and *cert. denied*, — U.S.—, 117 S. Ct. 1258, — L. Ed. 2d — (1997). After searching the plain language of DOHSA we, like other courts, find that Congress made no express reference to the words "survival," "survival remedy" or "survival action" anywhere in the Act. See 46 U.S.C.App. §§ 761-768; *see also Kuntz v. Windjammer "Barefoot" Cruises, Ltd.*, 573 F. Supp.

1277, 1285 (W.D.Pa.1983), *aff'd*, 738 F.2d 423 (3d Cir.), *cert. denied*, 469 U.S. 858, 105 S. Ct. 188, 83 L. Ed. 2d 121 (1984); *Azzopardi*, 742 F.2d at 894.

We are also unpersuaded that Congress intended to make an indirect statement precluding the recognition of a general maritime law survival action remedy via section 765 of DOHSA. *But see Dooley*, 117 F.3d at 1482 (suggesting that section 765 created "a very limited survival provision" which constitutes an "expression of legislative judgment on the extent to which survival actions are to be permitted"). Section 765 provides as follows:

> If a person die [sic] as the result of such wrongful act, neglect, or default as is mentioned in section 761 of this title during the pendency in a court of admiralty of the United States of a suit to recover damages for personal injuries in respect of such act, neglect, or default, the personal representative of the decedent may be substituted as a party and the suit may proceed as a suit under this chapter for the recovery of the compensation provided in section 762 of this title.

46 U.S.C.App. § 765 (emphasis added). In our view, this provision is not a survival action provision at all, a conclusion which the Supreme Court appears to have endorsed in *Sea-Land Services v. Gaudet*, 414 U.S. 573, 575 n. 2, 94 S. Ct. 806, 810 n. 2, 39 L. Ed. 2d 9 (1974) ("The Federal Employers' Liability Act [FELA] and the Jones Act, but not the Death on the High Seas Act contain survival provisions.") (internal citations omitted); *see also Azzopardi*, 742 F.2d at 893 ("DOHSA is a wrongful death statute and contains no survival provision."). Rather, section 765 is best viewed as a permissive non-abatement/conversion provision which, under the Act as originally drafted, provided a useful mechanism for preserving a wrongful death action beyond the original Act's statute of

limitations when the decedent did not die from the antecedent wrongful act within the limitations period. *See* Hughes, *Death Actions in Admiralty*, 31 Yale L.J. 115, 126 (1921) (commenting on how the Act allows a badly injured party to preserve his DOHSA rights if he initiates a personal injury lawsuit during his life). While section 765 also effectively operated to abrogate the old common law rule that a cause of action necessarily died with the decedent, nothing in section 765 indicates that the provision was intended to require a decedent's personal representative to abandon any survival cause of action that may have existed via statute or general maritime law in favor of a wrongful death remedy for a designated DOHSA beneficiary. *See Bodden v. American Offshore, Inc.*, 681 F.2d 319, 331-332 (5th Cir.1982) (discussing intent of section 765 and other DOHSA provisions and concluding that "a careful reading and rereading of these sections convinces us that Congress did not address or intend to address the issue of two causes of action"); Maraist, *Developments in the Law, 1983-1984: Admiralty*, 45 La. L.Rev. 179, 196 (1984); *cf. Kuntz*, 573 F. Supp. at 1285 ("intent of [section 765] is to grant the beneficiaries the right to continue a decedent's original suit as a wrongful death action under DOHSA, without the burden of filing a new action").

It is, in our view, this permissive means of ensuring the survival of a wrongful death remedy beyond DOHSA's original statute of limitations--and nothing more--that the Supreme Court was commenting on in *Higginbotham* when it described Congress's judgment "on such issues as the beneficiaries, the limitations period, contributory negligence, survival and damages." 436 U.S. at 625, 98 S. Ct. at 2015. In fact, if the *Dooley* court's broader interpretation of the Supreme Court's meaning were correct, the remainder of the above-quoted paragraph in *Higginbotham*—where the Supreme Court speaks of DOHSA as if it sounds only in wrongful death law, see

Higginbotham, 436 U.S. at 625, 98 S. Ct. at 2015 ("The Act does not address every issue of wrongful-death law")—is difficult to understand.

Finding nothing in the plain language of DOHSA that suggests Congress intended to speak to the issue of survival actions, we turn to DOHSA's legislative history. We again find no references to survival actions. As the *Kuntz* court has observed:

> Representative Volstead, who sponsored the bill, stated as the purpose of the bill as follows:
>
> > The object of this bill is to give a cause of action in case of death resulting from negligence or wrongful act occurring on the high seas. Nearly all countries have modified the old rule which did not allow relief in the case of death under such circumstances. Under what is known as Lord Campbell's Act, England, many years ago, authorized recovery in such cases. France, Germany, and other European countries now followed this more humane and enlightened policy and allow dependent parties to recover in case of death of their near relatives upon the high seas.
>
> Congressional Record, 66th Congress, Volume 59, page 4482. These comments deal with dependents, beneficiaries, and the Lord Campbell's Act. Lord Campbell's Act was a wrongful death statute not a survival statute. *See Gaudet* at page 579, 94 S. Ct. at page 812. Additionally, survival actions do not involve dependents and beneficiaries, as do wrongful death actions. Not only did Representative Volstead discuss the bill in terms of beneficiaries and dependents, but other representatives did likewise. *See* Mr. Sonders, page 4485, Congressional Record, 66th Congress, Volume 59.

Kuntz, 573 F. Supp. at 1285. In other words, the entire debate about DOHSA—which stretched over several sessions of Congress—centered on matters related to wrongful death actions, and did not even touch on the specific issue of whether survival action remedies should be preserved or eliminated. *See also Azzopardi*, 742 F.2d at 893 ("The legislative history of DOHSA gives no indication that the statute was intended to affect survival actions.").[5]

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[5]The only potentially significant direct reference to survival actions that we have discovered is in a *Yale Law Journal* article authored in 1921, a little more than a year after DOHSA was enacted. he article is potentially significant because the author, Robert M. Hughes, claims to have drafted much of the language of DOHSA. *See* Hughes, Death Actions in Admiralty, 31 Yale L.J. 115, 116 (1921). Mr. Hughes's comments therein indicate that he was aware of the distinction between survival acts and wrongful death acts, and that he viewed DOHSA as a wrongful death act. *See* 31 Yale L.J. at 119-20, where the author states:

> Statutes . . . usually follow one of two theories. Some give a right of action to the injured party himself, and make that cause of action survive. . . . Others give an entirely new right of action to the relatives or other parties injured by the death on account of their loss from the death, and not on account of any right of action in the deceased himself made to survive for their benefit. . . . ("The difference between the two classes is well explained . . . [and t]he rationale of these decisions makes the act [DOHSA] a death act, not a survival act.")

If anything, these comments tend to cut against the *Dooley* court's view that DOHSA contains a limited survival provision.

We also note one other potentially enlightening piece of information from Mr. Hughes, found in his statement to the House Judiciary Committee during hearings on a version of DOHSA considered during the Sixty-Fourth Congress. *See Bills Providing Right of Action for Death on the High Seas, Hearing Before the Subcomm. H. Procedure, Jurisdiction, etc. of the House of Representatives Comm. on the Judiciary*, 64th Cong. (Feb.1916) (statement of Hon. Robert M. Hughes) [hereinafter "Hughes"]. According to Mr. Hughes, an early version of DOHSA contained a provision stating the following:

> [N]othing in this act shall be construed as abridging the rights of suitors

(continued...)

Despite the dearth of textual evidence or legislative history indicating that Congress intended to foreclose judicial recognition of general maritime survival actions when it enacted DOHSA, the District of Columbia Circuit found such an intent based on differences between DOHSA and the Jones Act, both of which were enacted in the same year. *See Dooley*, 117 F.3d at 1481-82 (attributing significance to the presence of a survival remedy in the Jones Act and the absence of such a remedy in DOHSA). We find this shopworn argument unpersuasive. First, we note that our colleagues in the Third Circuit rejected this precise argument several decades ago. *See Dugas v. National Aircraft Corporation*, 438 F.2d 1386, 1390 (3d Cir.1971). What the Third Circuit correctly recognized is that the Jones Act's survival remedy is only derivative, arising from a wholesale importation of FELA provisions into the seaman's context.[6] *Dugas*, 438 F.2d at 1390 (" . . . Congress [simply]

5(...continued)

in the courts of any State or Territory, or in the courts of the United States other than in admiralty, to a remedy given by the laws of any State or Territory in case of death from injury received elsewhere than on the high seas, provided that there shall be but one recovery by the person injured, or by or on behalf of any persons mentioned in section 1 [which included various relatives of the decedent as well as the personal representative of the decedent's estate].

Hughes at 5. This provision was omitted via amendment on the floor of the House of Representatives. Hughes at 5. While we hesitate to ascribe much significance to the actions of the Sixty-Fourth Congress, when it was the Sixty-Sixth Congress that ultimately enacted DOHSA, the omission of "one recovery" language from an early version of DOHSA, does suggest that Congress did not intend for DOHSA to foreclose all other possible remedies.

[6]The relevant provision of the Jones Act is codified at 46 U.S.C.App. § 688, which reads as follows:

Any seaman who shall suffer personal injury in the course of his employment may, at his election, maintain an action for damages at law,

(continued...)

incorporated into the Jones Act the whole of Section 9 of the F.E.L.A. along with its survival provision"). The Jones Act's derivative survival remedy thus provides no clear guidance with respect to Congress's thinking about survival remedies generally in the maritime context. Congress could have incorporated FELA into the Jones Act specifically to provide a survival action remedy, and could have also meant to distinguish Jones Act beneficiaries from DOHSA beneficiaries thereby. But such a conclusion is highly speculative, and we are unwilling to risk rewriting DOHSA under the guise of interpreting it--at least where the interpretation would be grounded on nothing more than speculation about Congress's intent.

In light of the absence of clear evidence that Congress intended DOHSA to bar the recovery of damages from a survival action, we believe the district court in this case properly followed our colleagues in the First, Third, Fifth and Eighth Circuits in recognizing a general maritime survival remedy and in permitting this remedy to supplement appellees' recovery

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[6](...continued)
with the right of trial by jury, and in such action all statutes of the United States modifying or extending the common-law right or remedy in cases of personal injury to railway employees shall apply; and in case of the death of any seaman as a result of any such personal injury the personal representative of such seaman may maintain an action for damages at law with the right of trial by jury, and in such action all statutes of the United States conferring or regulating the right of action for death in the case of railway employees shall be applicable. Jurisdiction in such actions shall be under the court of the district in which the defendant employer resides or in which his principal office is located.

The reference to statutes extending remedies to railway employees is universally accepted as a reference to FELA.

under DOHSA.[7] *See Barbe v. Drummond*, 507 F.2d 794, 800 (1st Cir.1974); *Kuntz*, 573 F. Supp. at 1286; *Azzopardi*, 742 F.2d at 894; *Spiller* v. *Thomas M. Lowe, Jr. & Assoc., Inc.*, 466 F.2d 903, 909-10 (8th Cir.1972); *cf. Greene v. Vantage Steamship Corp.*, 466 F.2d 159, 166 n. 11 (4th Cir.1972) (acknowledging substantial authority that a state law survival statute cause of action can be joined with a cause of action under DOHSA); *Solomon v. Warren*, 540 F.2d 777, 792 n. 20 (5th Cir.1976) (allowing state law survival cause of action for pain and suffering to supplement DOHSA recovery), *cert. dismissed*, 434 U.S. 801, 98 S. Ct. 28, 54 L. Ed. 2d 59 (1977).

2. Computation of damages

We next consider whether the district court erred in determining the amount of damages. A review of the record reveals that "the district court considered all appropriate circumstances and the varying importance of those circumstance in arriving at its award." *Solomon*, 540 F.2d at 792. Accordingly, we conclude the district court provided a sufficient explanation and adequate findings to support its award of damages. *Gray*, 880 F. Supp. at 1570-72. In determining the available damages, the district court also properly followed the Supreme Court's holding in *Miles v. Apex Marine Corp.*, 498 U.S. 19, 34, 111 S. Ct. 317, 326-27, 112 L. Ed. 2d 275 (1990), which provides that the Jones Act or FELA governs the damages available in a general maritime law survival claim. Because the Jones Act/FELA survival provision limits recovery to losses suffered during the decedent's lifetime, the district court did not err in awarding damages only for pain and

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[7]This is so in no small part because it "better becomes the humane and liberal character of proceedings in admiralty to give than to withhold the remedy." *Moragne v. States Marine Lines, Inc.*, 398 U.S. 375, 387, 90 S. Ct. 1772, 1781, 26 L. Ed. 2d 339 (1970) (quoting Chief Justice Chase in *The Sea Gull*, 1 Chase 145, 21 F. Cas. 909, 910 (No. 12,578) (CC Md 1865)).

suffering based on the few seconds of mental anguish each decedent likely experienced before death.

F. Prejudgment Interest

The last issue we address is whether the district court erred in failing to award prejudgment interest. The record is silent as to the district court's decision. As appellees point out, where the proper award can be determined without further factual findings by the district court, this court may exercise its authority to award prejudgment interest. *Self v. Great Lakes Dredge & Dock Co.*, 832 F.2d 1540 (11th Cir.1987), *cert. denied*, 486 U.S. 1033, 108 S. Ct. 2017, 100 L. Ed. 2d 604 (1988). With no record of the district court's decision, however, we cannot determine why the district court failed to grant appellees an award of prejudgment interest. Lockheed alleges that the district court possibly denied the interest because appellees filed an untimely request. Although prejudgment interest is generally granted in admiralty cases, *Self*, 832 F.2d at 1550-51, a denial of prejudgment interest due to an untimely application may not constitute an abuse of discretion. Because the record is unclear, we remand the determination whether appellees should receive prejudgment interest to the district court.

CONCLUSION

In accordance with the foregoing, we remand on the determination of prejudgment interest and affirm the judgment of the district court in all other respects.

AFFIRMED IN PART AND REMANDED IN PART.

APPENDIX B

UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

STACY C. GRAY, individually and as Surviving Spouse of Lt. Douglas G. Gray, and as Personal Representative of Lt. Douglas G. Gray, deceased,

Plaintiff,

v.

LOCKHEED AERONAUTICAL SYSTEMS COMPANY, a division of Lockheed Corporation,

Defendant.

GRACE M. SCHUMACHER, individually and as Surviving Parent of Lt. John T. Hartman, and as Personal Representative of Lt. John Hartman, Deceased,

Plaintiff,

v.

LOCKHEED AERONAUTICAL SYSTEMS COMPANY, a division of Lockheed Corporation,

Defendant.

WILMA J. JENNINGS, individually, and as Surviving Parent of Lt. David S. Jennings, and as Personal Representative of Lt. David S. Jennings, Deceased,

Plaintiff,

v.

LOCKHEED AERONAUTICAL SYSTEMS COMPANY, a division of Lockheed Corporation,

Defendant.

Civil Nos. 1:91-cv-2399-ODE; 1:91-cv-2400-ODE; 1:91-cv-2401-ODE

March 31, 1995

ORDER

ORINDA D. EVANS, District Judge:

In these consolidated wrongful death and survival actions, Plaintiffs seek damages due to their decedents' deaths in the crash of an S-3 Viking jet aircraft ("S-3") that Defendant, a Delaware corporation, manufactured and sold to the United States Navy in 1975. Plaintiffs assert claims under the Death on the High Seas Act, 46 U.S.C. App. §§ 761-768 ("DOHSA"), and general maritime law. The court conducted a bench trial on February 21, 23, 24, 27, and 28, and March 1, 6, 7, 8, and 9, 1995. Having heard, reviewed, and considered the evidence and the arguments of the parties, the court makes the following findings of fact and conclusions of law in accordance with Fed.R.Civ.P. 52(a).

The S-3 had its genesis in a specific operational requirement ("SOR"), a document the Navy uses to identify threats and to propose weapons systems to counter those threats. The SOR

relevant here addressed potentially hostile submarines and recommended the creation and acquisition of an antisubmarine warfare ("ASW") aircraft to help neutralize the threat these submarines posed. From this SOR, the Navy sought proposed designs for the new ASW aircraft from defense contractors via a request for proposal ("RFP"). Defendant and other contractors responded to the Navy's RFP with specific proposals.

The Navy selected Defendant to build the S-3 in mid-1969. A "detail specification" covering more than six hundred pages was part of the contract that Defendant and the Navy executed. However, despite its length and title, the detail specification was only the starting point for most of the S-3's components.

A naval officer, Cpt. Fred Baughman, served from July 1968 to July 1973 as the Navy's program manager for the S-3 procurement program.[1] Baughman, who worked from a Washington, D.C. office, supervised approximately 25 to 30 Navy engineers who were part of the Navy's Naval Plant Representative Office ("NAVPRO") at Defendant's Burbank, California factory, where the S-3 was designed and created. NAVPRO was Baughman's on-site representative at Defendant's factory.

NAVPRO engineers worked closely with Defendant's engineers on many aspects of the S-3's development. During the design phase the Navy conducted a series of meetings called the preliminary design review and the critical design review. Once a prototype of the S-3 existed, Baughman and a team of Navy experts conducted a functional configuration audit and physical configuration audit. Following the completion of the

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[1]Baughman, now a retired rear admiral, testified at the trial for Defendant.

physical configuration audit, the Navy "froze" the S-3's design and would allow changes to the design only via a formal process under the Navy's control.

The Navy developed the testing regimen for the S-3. Defendant's test pilots were the first to fly the S-3. The Navy received all test results. Navy pilots then flew the S-3 in a Navy Preliminary Evaluation ("NPE"), a multi-phase test with increased complexity and demands in each succeeding phase. The Navy used the NPE to determine if the S-3 met specifications and was safe to fly. None of Defendant's employees flew with the Navy's pilots during the NPE. After the NPE, the Navy subjected the S-3 to Board of Inspection and Survey ("BIS") tests for a separate report to the Secretary of the Navy on the S-3's suitability for service use.

The S-3 ultimately passed all of the Navy's acceptance tests. Defendant delivered the particular S-3 involved in this action to the Navy in September 1975.

At the time of their deaths, Plaintiffs' decedents were stationed aboard the *U.S.S. John F. Kennedy*, an aircraft carrier. On October 7, 1989, the date the S-3 at issue crashed, the *John F. Kennedy* was conducting flight operations 125 miles off the coast of Virginia. Lt. Douglas G. Gray, the pilot of the S-3, and Lt. John T. Hartman, the mission commander, respectively sat in the left-front and right-front seats of the S-3. Air Warfare Technician Second Class ("AW2") Tracy S. Mann, the sensor operator, and Lt. (j.g.) David S. Jennings, the tactical coordinator, respectively sat in the left-rear and right-rear seats.

The S-3 was asymmetrically loaded; this means that the left wing held an 800-pound wing store, while the right wing held a 200-pound wing store. Lt. Gray and the other crewmembers properly conducted the preflight checks that are required prior

to flying the S-3. The S-3 then was moved to the carrier's catapult, which is used to accelerate airplanes to flight speed.

Prior to the launch, Lt. Gray verified that the S-3's control surfaces (*i.e.*, the ailerons, spoilers, and elevators) were working properly by executing a "control wipeout," which means that he moved the pilot's control stick laterally and longitudinally through its range of motion so that the aircrew and sailors on the deck could observe the movement of the control surfaces. He then properly configured the control surfaces for a catapult launch. Both engines were brought to full power and sounded normal.

When the S-3 was launched, the catapult stroke was normal. What appeared to be a momentary, orange and black fireball approximately three to four feet in diameter was observed under the S-3 as it traveled down the catapult. The S-3's engines sounded normal during the catapult stroke. The S-3 behaved normally immediately after leaving the catapult, in that it left the catapult with its wings level and began a shallow climb. Then, after approximately two seconds, Lt. Gray initiated a slow right roll. He attempted to halt this roll when the S-3 reached 20 degrees of bank angle, the normal bank angle for a clearing turn. However, the S-3 did not respond to his movement of the control stick. As the control stick moved to the left, the plane's right roll should have stopped but it did not.

When the S-3 reached 45 degrees of bank angle, AW2 Mann heard Lt. Gray exclaim "Oh my God! Eject! Eject! Eject!" The S-3 is designed with a duplicate control stick on the mission commander's side (*i.e.*, the right side) of the cockpit; this stick is slaved to the pilot's control stick and thus mimics the movement of the pilot's control stick. At the time Lt. Gray ordered ejection, AW2 Mann observed Lt. Hartman's control

stick all the way over to the left, to the point that it was touching Lt. Hartman's leg.

Upon hearing Lt. Gray's ejection command, Lt. Hartman, the designated ejector, immediately initiated the sequence that would eject all four occupants from the S-3. The two rear occupants of the S-3, Lt. Jennings and AW2 Mann, ejected first, when the S-3 was at approximately 90 degrees of right bank angle. Lt. Gray and Lt. Hartman ejected when the S-3 was at or beyond 120 degrees of right bank angle.

None of the crewmembers' parachutes had time to open before impact with the water. All three decedents struck the water with great force because of the angle of ejection and the relatively high velocity they gained from the rocket motors on the ejection seats. All three decedents suffered grievous, fatal bodily injury upon impact with the water. Though located, Lt. Hartman's body ultimately was lost at sea due to its entanglement in debris. Though injured, AW2 Mann survived the crash.

Lt. Gray had more than 450 hours of flight experience in the S-3 at the time of his death. The S-3 at issue was in the air for approximately six to eight seconds after it left the carrier. Lt. Gray determined that the S-3 was experiencing an uncommanded right roll approximately three to four seconds into the flight. The right roll was smooth and uninterrupted until the S-3 impacted the water.

As will be discussed below, Plaintiffs contend that the S-3 crashed due to design defects in its aileron servo ("servo"). An aileron is one of the control surfaces that causes an airplane to move when it is in flight. Specifically, an aileron is "a movable part of an airplane wing or a movable airfoil external to the wing at the trailing edge for imparting a rolling motion and thus providing lateral control." *Webster's New Collegiate*

Dictionary 24 (1979). On the S-3, the servo links the pilot with the ailerons.

The servo is approximately the size of a small automobile engine or transmission. It is mounted inside the S-3's fuselage and is the link between the pilot and the ailerons. A cable connects the pilot's control stick to the servo's input arm. A cylindrical "ram" made of metal is mounted horizontally inside the servo, at its very top. A rod attaches to the ram where the ram protrudes from the servo; the rod then passes through the wings and attaches to the ailerons.

The S-3 has two jet engines. When running, each engine drives a hydraulic pump, which in turn powers an independent hydraulic system. The left and right engines respectively power the number one and number two hydraulic systems. Each hydraulic system alone should provide 3000 pounds per square inch ("psi") of hydraulic pressure.

Ordinarily, the S-3's servo functions in the "powered" mode, using hydraulic power. In this mode, the pilot has no mechanical link with the ailerons. Instead, the pilot's movement of the control stick moves the input arm, which in turn moves a control valve inside the servo. The control valve causes hydraulic fluid under pressure to move the ram to the left or right; the movement of the ram causes the rod to raise or lower the ailerons. For example, when the ram moves right, the trailing edge of the right aileron rises and the trailing edge of the left aileron drops.

In the event of a hydraulic failure, the servo should automatically switch to "manual" mode, which is known as the

Emergency Flight Control System ("EFCS").[2] The key to EFCS is a pin and a latch inside the servo. Adequate hydraulic pressure in the servo causes strong springs to compress, holding the pin out of the latch. When hydraulic pressure in both systems drops below 800 psi, a shutoff valve at the bottom of the servo should "trip," cutting off all hydraulic pressure in the servo. The absence of hydraulic pressure allows the springs to expand; this expansion should move the pin into the latch, an event called "latch-up." Once latch-up occurs, there is a direct mechanical link between the pilot and the ailerons, though the pilot must put much more effort into moving the control stick.

In order for the servo to return to the powered mode (*i.e.*, in order for the shutoff valve to open), one of the hydraulic systems must achieve pressure at or above 2000 psi, plus or minus 300 psi. (Defendant's Ex. 3657 at 18.) There is a 1200 psi gap between the respective pressures for the powered and manual modes to ensure that the servo does not cycle back and forth between the two modes.

During the S-3's development, Defendant subcontracted work on the servo to Bertea Corporation ("Bertea"), which actually fabricated the servo.[3] Bertea developed the acceptance test procedure ("ATP") for the servo. An ATP tests whether a product performs in accordance with design specifications. Robert Loschke, an engineer employed by Defendant, worked on the design and development of the S-3. Appearing for Defendant, he testified that a transition lag of .25 seconds between the powered and manual modes would be hazardous.

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[2]At the time of its design, this aspect of the servo was unique. At this time, only one other plane in the United States' inventory has a similar system.

[3]Bertea is now a subsidiary of Parker-Hannifin Corporation ("Parker-Hannifin").

Defendant intended for the latch-up to occur in one-fourth or one-fifth of that amount of time. Nevertheless, the ATP for the servo did not measure the speed of EFCS latch-up. The ATP also was a static (as opposed to dynamic) test, in that it did not test the servo's operation while the servo was subjected to simulated flight demands (such as inputs from movement of the input arm or the ram).[4]

In the spring of 1990, the Navy recovered the servo from the crashed S-3.[5] Douglas Crawford, an engineer who worked for Defendant from 1986 to 1992, provided product support to the Navy for the S-3's flight control systems during most of his tenure with Defendant. He attended the post-crash testing of the servo and submitted a "trip report" to Defendant regarding his findings. (Plaintiffs' Ex. 220.)

The ATP's static tests showed normal operation of the servo. *Id.* at 2. However, when Crawford deviated from the ATP and moved the servo's input arm to simulate commands from the control stick, the servo's shutoff valve tripped at 1400 psi, not the specified 800 psi. *Id.* In other words, the servo's shutoff valve "sensed" 800 psi, even though the actual pressure was 1400 psi.

When the servo was disassembled after the foregoing tests, the EFCS was found to be latched-up; *i.e.*, the pin was in the latch. Crawford, who appeared via videotaped deposition, testified that the pin could be placed in the latch by hand, though to do so required some force. Crawford observed a chip

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[4]In 1987, the S-3 involved in the mishap at issue here underwent a maintenance procedure known as scheduled depot level maintenance ("SDLM"). During SDLM, the servo was replaced with another servo that Bertea had rebuilt.

[5]The S-3 was approximately 10,000 feet under the ocean's surface.

on the pin (*i.e.*, there was a spot on the pin where the metal plating was worn away). Crawford testified, and the court finds, that the chip showed the pin had been fluctuating in and out of the latch due to hydraulic pressure fluctuation in the servo.

When the pin and latch were measured, it was found that the latch measured .3746, while the pin measured .37487. The specification for each component requires a measurement of .3750, plus or minus .0001. Jesse Dooman, one of Plaintiffs' expert witnesses, testified, and the court finds, that the out-of-tolerance latch would adversely affect the speed of latch-up.

Defendant's own documents show that the S-3 has an ongoing, unresolved problem with its flight control system. A June 1985 document entitled "Lockheed Private Data [-] Significant In-Service Problem Report" states that

> [t]he S-3A has experienced flight control anomalies, both in flight and on the ground. Lockheed correspondence and Navy messages indicate that aircraft, at times, have had a situation where the control stick apparently has no influence on the control surfaces. Aircrews have reported that the stick feels different, somewhere between normal powered mode and Emergency Flight Control System (EFCS).

(Plaintiffs' Ex. 132 at 1; *accord* Plaintiffs' Exs. 70 and 138.) A 1987 memorandum from J.W. Schmitz, a staff engineer in Defendant's Military System Safety division, to another of Defendant's employees states that

> [a] recent report . . . described an in flight lateral control system problem and highlights an urgent, repeating and an as yet unresolved safety of flight problem.
>
> This is the second documented lateral control system problem for this airplane since 1984. For some unknown

> reason the S-3 seems to be vulnerable to periodic loss of flight control effectiveness in flight.

(Plaintiffs' Ex. 167 at 1.) Lastly, the JAG Report's analysis and conclusions state that "the aileron flight control servo has twelve documented [incidents] of 'free stick' in the last eight years." (Plaintiffs' Ex. 645.)

Plaintiffs produced expert testimony that the "fireball" observed under the S-3 as it traveled down the catapult probably was a large cloud of hydraulic fluid which escaped under high pressure from a rupture in one of the S-3's hydraulic systems. The court finds that the "fireball" in fact heralded the failure of one of the hydraulic systems. Crawford testified that the S-3's hydraulic systems bear the most burden during the moments after takeoff, when the systems are called on to retract the landing gear[6] and launch bar, as well as to operate the flight control surfaces. Crawford stated that pressure dropped across both hydraulic systems even with both systems working. Thus, in the two seconds before Lt. Gray initiated the right roll, one of the S-3's two hydraulic systems had failed at the time when the S-3 most needed hydraulic power. As a consequence, pressure in the S-3's remaining hydraulic system was much lower and was fluctuating because of the changing demands on the system.

Plaintiffs offered expert testimony that the components in the EFCS generated significant friction which would slow down the rate at which the servo would transition to EFCS. Plaintiffs' documentary evidence supports this testimony. In 1978, Defendant prepared a document entitled "S-3A Primary Flight

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[6]The JAG Report's findings of fact state that the S-3's gear was down when it crashed. (Plaintiffs' Ex. 651, P42.) However, none of the witness statements cited in the findings of fact support this statement. See witness statements cited in Plaintiffs' Ex. 651, P42.

Control Servo Linkage Study." (Plaintiffs' Ex. 500.) In this document, Defendant proposed placing a needle bearing around the pin in the latch mechanism in order to "reduce the loading and friction of the manual reversion mechanism." *Id.* at 2-3. Unsigned engineering notes dated January 13, 1986 that Defendant produced include the statement "ALEX W of BERTEA claims 5-4-84 that the 90 lb EFCS spring will not overcome 20 # friction in RAM. . . . Thus surface bearing friction and servo friction exceed the 20 # margin given by ALEX." (Plaintiffs' Ex. 153.) The court also notes that Defendant never conducted a kinematic study of the EFCS mechanism to determine if it generated excessive friction.

In 1984 Lyle Schaefer, Defendant's chief test pilot, verified that free stick can occur in the S-3. In an interdepartmental communication between Schaefer and J. B. Pray, another of Defendant's employees, Schaefer wrote that "the 'intermediate' EFCS mode of no latch-up, no power and no control has been tagged as a shutoff valve problem. Most [of the participants at a conference hosted by the Navy] appeared to believe the condition can exist." (Defendant's Ex. 1799.)

Plaintiffs and Defendant agree that all of the S-3's systems were functioning properly when it was hooked to the catapult. Defendant contends that an engine failure, not a problem with the servo, caused the S-3 to crash. Specifically, Defendant contends that the right engine began suffering a "partial thrust loss" as the S-3 traveled down the catapult; *i.e.*, something was wrong with the engine and it began producing less and less power. When the S-3 became airborne, the loss of power in the engine caused increased drag, which led the S-3 to stall and crash.

Defendant's stall theory is plausible. However, the evidence does not support it. First, there was undisputed testimony at

trial that Defendant adopted its stall theory only after discovery had ended and shortly before trial was to begin.

Second, the Navy prepared a Judge Advocate General's Report ("JAG Report") regarding the crash. The Navy rejected engine failure as a cause of the S-3's crash in the JAG Report's analysis and conclusions. (Plaintiffs' Ex. 645.) Moreover, the court has found above that the S-3 flew normally during the first two seconds of flight. This initial period of normal flight is inconsistent with the loss of power in one engine.

Third, witnesses testified, and the court finds, that the S-3 could fly off the deck of an aircraft carrier with only one engine. Defendant's theory requires the court to find that either Lt. Gray failed to notice a right-engine failure or he noticed an engine failure but failed to take the necessary steps to compensate for the loss of power. However, Defendant produced no evidence to support such a finding. By all accounts, Lt. Gray was a competent, experienced pilot. Defendant produced no evidence to challenge his abilities. Instead, it relied on an autopsy finding that showed he was self-medicating with cold medicine at the time of the crash despite a general prohibition on self-medication in the naval aviation community. While the amount of cold medicine in Lt. Gray's system was higher than the recommended therapeutic dosage, Defendant provided no evidence by which the court can assess whether this overage had any significance. Moreover, the Navy placed little credence in Lt. Gray's self-medication as a cause of the crash in the JAG Report's analysis and conclusions. *See id.* at 3-4.

Based on the foregoing discussion, the court declines to find that the S-3 stalled and crashed due to a loss of power in its right engine. On the other hand, the abundant evidence discussed earlier shows that the following sequence of events more probably than not led to the crash of the S-3: All systems

on the S-3 were working properly when it was hooked to the catapult . However, as the S-3 traveled down the catapult, one of its hydraulic systems suffered a complete failure. Contrary to expectations, pressure in the remaining hydraulic system dropped because of the added demands for hydraulic power it had to satisfy with the loss of the other system. Lt. Gray's initiation of the right roll, which necessarily moved the servo's input arm, caused the servo to attempt to transition into EFCS at 1400 psi. However, the low, fluctuating hydraulic pressure, coupled with the shutoff valve's operation at a higher-than-specified pressure, caused the servo to chatter at millisecond intervals between the powered and manual modes. The friction in the EFCS mechanism and a mis-sized latch impeded the servo's ability to transition swiftly into EFCS. The chattering caused (1) the freezing of the ram in the right roll position (with an attendant freezing of the aileron in the same position) and (2) the condition known as "free stick," in which Lt. Gray's movement of the control stick did not translate into any movement of the control surfaces. The S-3 thus continued the smooth right roll noted above until impact with the ocean.

GOVERNMENT CONTRACTOR DEFENSE

Because Plaintiffs assert that several design defects caused the servo to chatter, the court must first determine whether Defendant is immune from liability for these alleged defects under the "government contractor defense." The Supreme Court adopted this defense as federal common law in *Boyle v. United Technologies Corp.*, 487 U.S. 500, 101 L. Ed. 2d 442, 108 S. Ct. 2510, (1988). Under this defense, a government contractor is not liable for injuries caused by a product's defective design if the following elements exist:

> (1) the United States approved reasonably precise specifications; (2) the equipment conformed to those

specifications; and (3) the supplier warned the United States about the dangers in the use of the equipment that were known to the supplier but not to the United States.

Id. at 512. The court finds that Defendant failed to show the existence of the first and second of the foregoing elements.

Defendant produced extensive evidence that there was a close working relationship between it and the Navy during the overall design and creation of the S-3. However, a close working relationship is not enough to satisfy the first Boyle prong. "Boyle makes clear that the requirements of 'reasonably precise specifications' and conformity with them refer to the particular feature of the product claimed to be defective." *Bailey v. McDonnell Douglas Corp.*, 989 F.2d 794, 799 (5th Cir. 1993) (citing *Boyle*, 487 U.S. at 512) (emphasis in original).

As noted above, Defendant subcontracted work on the servo to Bertea. William Burriss, a civilian Navy engineer, was deeply involved in the S-3 procurement program. Appearing at trial as Defendant's witness, he testified that typically a prime contractor would have a large amount of control over a subcontractor's work on a component, with little Navy involvement. The development of the servo followed this pattern. Defendant produced no evidence that the Navy ever reviewed and approved specific engineering drawings of the servo. *Cf. Maguire v. Hughes Aircraft Corp.*, 912 F.2d 67, 71 (3d Cir. 1990) ("The Air Force's senior project engineer reviewed and approved every element of the proposed design and every proposed design change."); *Kleemann v. McDonnell Douglas Corp.*, 890 F.2d 698, 702 (4th Cir. 1989) ("The Navy here performed extensive review of detailed design drawings submitted by MDC."), *cert. denied*, 495 U.S. 953, 109 L. Ed. 2d 545, 110 S. Ct. 2219 (1990). Instead, Defendant relied on a

document entitled "Equipment Specification - Power Servos, Primary Flight Controls" as proof that the first Boyle prong was satisfied. (Defendant's Ex. 3657.) However, the Equipment Specification was prepared in 1968, prior to the execution of the contract between Defendant and the Navy and long before a working servo existed. Moreover, a review of the Equipment Specification reveals that it contains only narrative descriptions of the various aspects of the servo; these descriptions are no more detailed than the findings of fact in this order. *See id. passim*. The court finds that these descriptions do not qualify as "reasonably precise specifications." Finally, Defendant relies on the various reviews and audits, as well as the NPE and BIS tests, of the S-3 to show the Navy's approval of the servo. However, Defendant produced no evidence that the Navy reviewed and approved specific engineering drawings of the servo during any of these events. Therefore, the Navy's overall acceptance of the S-3 following the various reviews, audits, and tests was, with regard to the servo, merely a "rubber stamp" approval that did not satisfy the first *Boyle* prong. *Trevino v. General Dynamics Corp.*, 865 F.2d 1474, 1480 (5th Cir.), *cert. denied*, 493 U.S. 935, 107 L. Ed. 2d 317, 110 S. Ct. 327 (1989). Defendant thus failed to satisfy the first *Boyle* prong.

Assuming that the Navy had approved reasonably precise specifications for the servo, it is clear that the servo did not conform to those specifications. This is because the narrative specifications introduced into evidence clearly called for an automatic manual reversion system that operated without a hazardous lag. The servo failed both of these requirements. First, the foregoing discussion of chatter in the servo abundantly demonstrates that it suffered from a hazardous lag. Second, Plaintiffs produced expert testimony (including testimony by Crawford) that the transition to EFCS could not occur because Lt. Gray held the S-3's control stick as far to the left as it would

go. It is undisputed that the ram must be within 60% of its centered position for latch-up to occur; Plaintiffs' experts thus testified that the control stick had to be moved to within 60% of its centered position to allow corresponding movement by the ram. Defendant's expert witness disagreed, contending that, once a hydraulic failure occurred and the servo lost hydraulic pressure, aerodynamic forces (*i.e.*, the pressure of wind moving over the wings) would force the ailerons down, which in turn would move the ram to the centered position. However, Defendant's expert witness did not address the situation that existed here, where the servo was subjected to a diminished, fluctuating hydraulic power source, not a total loss of hydraulic power. Moreover, Mark McWhorter, one of Defendant's engineer employees, co-authored a memorandum with Heather Shoup, a civilian Navy engineer, in May 1992; the memo expressly states that "the requirement for the stick being within the 60% authority range is only applicable when transferring into EFCS from powered flight. If the stick is outside of this range the servo may not latch, resulting in a loss of feel or a free stick." (Plaintiffs' Ex. 619.) The preponderance of the evidence favors Plaintiffs' assertion that the control stick had to be within 60% of its centered position for latch-up to occur. Thus, the EFCS was not automatic, since under some circumstances the pilot had to take some affirmative action to engage it.

LIABILITY

At the time they were filed, Plaintiffs' complaints contained the following identical counts against Defendant:

> 1-3: negligence in the design of the aircraft, the manufacture and construction of the aircraft, and the failure to warn about the danger of the aircraft;

4-6: gross negligence in the design of the aircraft, the manufacture and construction of the aircraft, and the failure to warn about the danger of the aircraft;

7-9: wanton and willful conduct in the design of the aircraft, the manufacture and construction of the aircraft, and the failure to warn about the danger of the aircraft;

10-12: strict liability in tort, breach of the warranty of fitness for a particular purpose, breach of the warranty of being reasonably suited to the use intended, and breach of the warranty of merchantability as to the design of the aircraft, the manufacture and construction of the aircraft, and the failure to warn about the danger of the aircraft;

13-15: breach of the warranty of sea-worthiness as to the design of the aircraft, the manufacture and construction of the aircraft, and the failure to warn about the aircraft;

16-17: intentional torts of assault and battery because of intentional improper design and intentional improper manufacture and construction;

18-20: intentional infliction of emotional distress because of faulty design, faulty manufacture and construction, and failure to warn about the dangers of the aircraft.

In its June 17, 1992 order, the court in part granted Defendant's motion for partial judgment on the pleadings. The court found that Plaintiffs had no cause of action under Georgia's wrongful death statute, the Public Vessels Act, and the Suits in Admiralty Act. As for the specific counts in Plaintiffs' complaints, the court found that Plaintiffs had no cause of action for a breach of warranty of seaworthiness or for assault and battery. The court also granted judgment to Defendant to the extent that Plaintiffs were suing in their individual/survivor capacities. Thus, at this point, Plaintiffs

appear in these actions only as the personal representatives of their decedents' estates.

In its September 30, 1994 order denying Defendant's motion for summary judgment, the court noted that Plaintiffs had abandoned all of their state law claims. Thus, at this point, the legal basis for Plaintiffs' claims is DOHSA and general maritime law. In their pretrial brief, Plaintiffs discuss only their strict liability and negligence claims. The court therefore dismisses the remaining, undiscussed claims as abandoned.

"Strict liability . . . is available in actions brought under the [DOHSA]." *Pavlides v. Galveston Yacht Basin, Inc.*, 727 F.2d 330, 338 (5th Cir. 1984). The court relies on generally-accepted principles of tort law for the elements of this claim:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
>
> (a) the seller is engaged in the business of selling such a product, and
>
> (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
>
> (2) The rule stated in Subsection (1) applies although
>
> (a) the seller has exercised all possible care in the preparation and sale of his product, and
>
> (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

Restatement (Second) of Torts, § 402A (1963-64).

Based on the foregoing discussion, the court finds that the S-3 at issue was in a defective condition, since under certain circumstances the servo would chatter between the powered and manual modes. The catastrophic effect of the free stick condition Lt. Gray consequently faced shows that the defective condition was unreasonably dangerous. Finally, the court finds that the conditions specified in § 402A((1)(a) and (b) existed at the time of the S-3's crash.[7] Therefore, Defendant is liable to Plaintiffs on their strict liability claims.

The generally-accepted standard for negligence is conduct that falls below what a reasonable person would have done under like circumstances. *Restatement (Second) of Torts*, §§ 282-283 (1963-64). The circumstances present here were Defendant's creation of a unique, and therefore untested, flight control component for a Navy warplane. The court finds that Defendant was plainly negligent in the following omissions:

First, Defendant's own expert witness testified that a .25 second transition lag between the powered and manual modes was hazardous. The lives of an S-3's crew literally hang in the balance when EFCS transition occurs. Nevertheless, the ATP (for which Defendant was responsible) made no provision for testing the speed of latch-up. Moreover, testing the speed of latch-up likely would have revealed the fact that the latch was undersized.

Second, an ATP that simulated flight demands on the servo would have allowed Defendant to discover the friction the EFCS mechanism generated, the tripping of the shutoff valve at higher-than-specified pressures, the fact that the latch was

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[7]The servo's replacement in 1987 and the manufacturing defect in the latch of the replacement servo have no bearing on Defendant's liability for the design defects discussed above.

undersized, and the fact that the control stick had to be within 60% of its centered position for latch-up to occur.

DAMAGES

Two types of damages are at issue in these cases: "survival" damages and "wrongful death" damages. "[A] survival action compensates the decedent's estate for damages incurred by him personally while wrongful death recovery compensates the decedent's dependents and other survivors for the damages they incurred due to the death." *Law v. Sea Drilling Corp.*, 523 F.2d 793, 795 (5th Cir. 1975).[8]

Under DOHSA, a decedent's personal representative may sue for damages "for the exclusive benefit of the decedent's wife, husband, parent, child, or dependent relative." 46 U.S.C. app. § 761. DOHSA sets allowable damages as "a fair and just compensation for the pecuniary loss sustained by the persons for whose benefit the suit is brought." 46 U.S.C. app. § 762. Because of this pecuniary limitation, some courts in the past allowed plaintiffs to supplement DOHSA claims with wrongful death and survival claims under general maritime law. . A general maritime law wrongful death claim allowed a plaintiff to seek loss of society damages, while a general maritime law survival claim allowed the award of damages for the decedent's pain and suffering and lost future income (without reference to the loss of the decedent's survivors), as well as punitive damages. *E.g.*, *Law v. Sea Drilling Corp.*, 510 F.2d 242, 250, *reh'g denied*, 523 F.2d 793 (5th Cir. 1975) (loss of society damages on general maritime law wrongful death claim).

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[8]In *Bonner v. City of Prichard*, 661 F.2d 1206, 1207 (11th Cir. 1981), the Eleventh Circuit adopted as binding precedent decisions of the former Fifth Circuit handed down prior to October 1, 1981.

In *Mobil Oil Corp. v. Higginbotham*, 436 U.S. 618, 56 L. Ed. 2d 581, 98 S. Ct. 2010 (1978), the Supreme Court addressed an action that arose from an accident on the high seas (like the instant accident), not territorial waters. The Court rejected the piggy-backing of general maritime law wrongful death claims on DOHSA claims by holding that DOHSA was the sole remedy for accidents on the high seas. *Higginbotham*, 436 U.S. at 623-24. The Court thus rejected loss of society damages for accidents occurring on the high seas. *Id.* The issue that remains is whether, after *Higginbotham*, Plaintiffs have viable survival claims under general maritime law.

In the second *Law* opinion, the Fifth Circuit endorsed a general maritime law survival action. *Id.*, 523 F.2d at 795. The Fifth Circuit has answered the question whether such a survival action survived the Supreme Court's *Higginbotham* decision:

> The Supreme Court granted certiorari to decide whether in addition to the damages explicitly authorized by DOHSA, the Moragne wrongful death remedy could by used in a DOHSA suit to recover non-pecuniary damages. The Court held that DOHSA was intended to be the exclusive *wrongful death* remedy in its area of coverage, and therefore the *Moragne* action could not be coupled with a DOHSA action to recover [non-pecuniary] damages for wrongful death. . . . The limited nature of this holding must be emphasized. Like DOHSA itself, *Higginbotham* treats solely wrongful death and wrongful death damages; it does not address survival actions. Given this, *Higginbotham* cannot be read as authority for the proposition that DOHSA precludes a survival action in the case of deaths occurring on the high seas.

Azzopardi v. Ocean Drilling & Exploration Co., 742 F.2d 890, 894 (5th Cir. 1984) (citations omitted) (emphasis in original). Given *Azzopardi's* persuasive reasoning, the court finds that

Plaintiffs have viable survival claims under general maritime law. However, the court also finds that Plaintiffs may recover only pain and suffering damages on these claims. The Supreme Court's opinion in *Miles v. Apex Marine Corp.*, 498 U.S. 19, 36, 112 L. Ed. 2d 275, 111 S. Ct. 317 (1990), mandates this limitation.

In *Miles*, the Supreme Court rejected a plaintiff's bid for damages for her decedent's lost future income pursuant to a survival claim under general maritime law:

> We sail in occupied waters. Maritime tort law is now dominated by federal statute, and we are not free to expand remedies at will simply because it might work to the benefit of seamen and those dependent upon them. Congress has placed limits on recovery in survival actions that we cannot exceed. Because this case involves the death of a seaman, we must look to the Jones Act.
>
> The Jones Act/[Federal Employers' Liability Act ("FELA")] survival provision limits recovery to losses suffered during the decedent's lifetime. . . . Because Torregano's estate cannot recover for his lost future income under the Jones Act, it cannot do so under general maritime law.

Miles, 498 U.S. at 36. Thus, in *Miles* the Supreme Court expressly held that the damages available on a general maritime law survival claim must be governed by the damages available under the Jones Act and FELA. Punitive damages are not available on a survival claim under the Jones Act or FELA. *Wildman v. Burlington N. R.R. Co.*, 825 F.2d 1392, 1395 (9th Cir. 1987) (FELA); *Kopczynski v. The Jacqueline*, 742 F.2d 555, 560-61 (9th Cir. 1984), *cert. denied*, 471 U.S. 1136, 86 L. Ed. 2d 696, 105 S. Ct. 2677 (1985) (Jones Act); *Kozar v. Chesapeake & Ohio R. Co.*, 449 F.2d 1238, 1240-43 (6th Cir. 1971) (FELA).

In summary, the court finds that DOHSA is the exclusive basis for Plaintiffs' wrongful death claims. Thus, Plaintiffs may recover wrongful death damages for loss of support, loss of services, and funeral expenses, but no damages for loss of society.[9] The court further finds that Plaintiffs have viable survival claims under general maritime law. Plaintiffs may recover damages for pain and suffering on these claims, but not punitive damages or damages for lost future income. The damages for pain and suffering awarded on these claims must go to Plaintiffs' decedents' respective estates. *Law*, 523 F.2d at 795.

Lt. Gray was 29.84 years old at the time of his death. His annual salary was $30,466.80 exclusive of fringe benefits. (See Plaintiffs' Ex. 457.) His fringe benefits included comprehensive medical care, retirement benefits, access to base exchanges and commissaries, and use of a world-wide network of clubs and recreational facilities. His life expectancy was 42.94 years, while his work life expectancy was 32.44 years. Lt. Gray was survived by his wife, Plaintiff Stacy C. Gray. Mrs. Gray was thirty-one years old at the time of trial.

Lt. Hartman was 31.4 years old at the time of his death. His annual salary and fringe benefits were approximately the same as Lt. Gray's. His life expectancy was 41.48 years, while his work life expectancy was 30.97 years. Lt. Hartman was survived by his wife, Debra Kelly Hartman Elliot,[10] his mother,

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[9]Given § 762's language, wrongful death damages are measured from the survivor's point of view, not the decedent's.

[10]At trial, Mrs. Elliot testified that she had remarried. This fact is irrelevant to the court's calculation of damages. *Brown v. United States*, 615 F. Supp. 391, 397-98 (D.C. Mass. 1985), *dismissed*, 795 F.2d 76 (1st Cir. 1986), *cert. denied*, 479 U.S. 1058 (1987); *Blumenthal v. United States*, 189 F. Supp. 439, 449 (E.D. Pa. 1960), aff'd, 306 F.2d 16 (3d Cir. 1962).

Plaintiff Grace M. Schumacher, his father, Donald Schumacher, and several siblings. At the time of trial, Mrs. Elliot was twenty-nine years old and Mrs. Schumacher was seventy-five years old.

Lt. Jennings was 28.3 years old at the time of his death. His annual salary was $20,210.40 exclusive of fringe benefits. (See Plaintiffs' Ex. 459.) His fringe benefits were the same as the other two decedents'. His life expectancy was 44.3 years, while his work life expectancy was 33.74 years. Lt. Jennings was survived by his mother, Plaintiff Wilma J. Jennings, his father, Frank Jennings, and a brother. At the time of trial, Mrs. Jennings was fifty-seven years old.

On the wrongful death claims, Mrs. Gray claims damages only for herself; Mrs. Schumacher claims damages for herself and for Mrs. Elliot; and Mrs. Jennings claims damages only for herself. On the survival claims, Plaintiffs seek damages on behalf of their decedents' respective estates; letters testamentary were placed into evidence for each of the named Plaintiffs. (Plaintiffs' Exs. 457-459.)

In determining the damages Plaintiffs are entitled to for the loss of their decedents' support, the court has calculated each decedent's lifetime earnings. Contrary to Plaintiffs' position at trial, the court finds that gross earnings must be reduced by income taxes. *Norfolk & Western R. Co. v. Liepelt*, 444 U.S. 490, 493, 62 L. Ed. 2d 689, 100 S. Ct. 755 (1980) ("It is [the wage earner's] after-tax income, rather than his gross income before taxes, that provides the only realistic measure of his ability to support his family."). The court accordingly has deducted twenty percent of each decedent's gross lifetime earnings to account for income taxes. The court also has reduced gross lifetime earnings to account for each decedent's personal consumption, and has discounted each decedent's net

lifetime earnings to present value. The sums awarded represent the actual pecuniary loss of the respective Plaintiffs.

Based on the foregoing calculations, the court awards loss of support damages to Mrs. Gray in the amount of $1.5 million, and to Mrs. Schumacher (including the claim on behalf of Mrs. Elliot) in the amount of $1.2 million. Regarding Mrs. Jennings, the court takes special note of her testimony that Lt. Jennings each year gave her several thousand dollars, as well as the fact that after his death she sought and received welfare benefits (from 1991 to 1993). From these facts, the court finds that Lt. Jennings' support to his mother would have been more extensive than is ordinarily the case. The court thus awards Mrs. Jennings loss of support damages in the amount of $ 600,000.00.

Having considered the testimony of the Plaintiffs and Mrs. Elliot, as well as the arguments of the parties, the court awards loss of services damages to Mrs. Gray in the amount of $ 300,000.00, to Mrs. Schumacher (including the claim on behalf of Mrs. Elliot) in the amount of $300,000.00, and to Mrs. Jennings in the amount of $175,000.00. These sums represent present cash value and are the actual pecuniary losses of each Plaintiff. The court awards no funeral expenses because Plaintiffs produced no evidence on this element of damages.

On the issue of pain and suffering, the court finds that each decedent likely experienced a few seconds of mental anguish prior to his death. Therefore, the court awards each Plaintiff $ 50,000.00 as the personal representative of her decedent's estate.

In summary, the court finds Defendant liable for damages as follows:

	Loss of Support	Loss of Services	Pain and Suffering[11]
Gray	$1.5 mil.	$300,000	$ 50,000
Schumacher	$1.2 mil.	$300,000	$ 50,000
Jennings	$600,000	$175,000	$ 50,000

CONCLUSION

Accordingly, all claims remaining in Plaintiffs' complaints are DISMISSED with prejudice with the exception of the wrongful death and survival claims for negligence and strict liability under DOHSA and general maritime law. Plaintiffs shall have judgment against Defendant on these remaining claims. Plaintiff Stacy C. Gray is AWARDED $1.8 million for her own damages and $50,000.00 as the personal representative of the estate of Lt. Douglas G. Gray. Plaintiff Grace M. Schumacher is AWARDED $1.5 million for her own damages and the damages of Debra Kelly Hartman Elliot, and $ 50,000.00 as the personal representative of the estate of Lt. John T. Hartman. Plaintiff Wilma J. Jennings is AWARDED $ 775,000.00 for her own damages and $50,000.00 as the personal representative of the estate of Lt. (j.g.) David S. Jennings. The Clerk is DIRECTED to enter judgment for Plaintiffs in accordance with the terms of this order.

SO ORDERED, this 31 day of March, 1995.

/s/ Orinda D. Evans

ORINDA D. EVANS
UNITED STATES DISTRICT JUDGE

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[11]As noted above, these damages must be distributed through the decedents' respective estates.